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BROOD SOWS AND THEIR LITTERS



By

R. L. HILL



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Brood Sows and Their Litters

A practical book on how to handle the
brood sow and her litter. What
to feed, when to feed and
how to feed. Also
how to care
for the
litter

By R. L. HILL

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CHAPTER I

Extent and Growth of the Swine Industry



HE swine industry is indeed a large one. The 1910 year book of the Department of Agriculture at Washington, D. C., states that on January 1, 1910, there were 47,782,000 swine on farms in the United States. The price per head was given at \$9.14, making a total farm value of \$436,603,000. The years of 1906, '07, '08 and '09 surpassed the 1910 record in numbers from five to almost ten millions, but the farm value in 1910 was higher and the price per head higher than for any previous year.

In the year 1867 there were 24,694,000 swine in the United States, with a price per head of \$4.03, making a farm value of \$99,637,000. Comparing the figures of 1867 with those of 1910, we find the numbers have doubled, the price per head more than doubled and the farm value increased five times.

Another way to get at the importance of the swine industry is to compare it with other meat-producing animals. On January 1, 1910, sheep on farms in the United States numbered 57,216,000 (some ten million more than the number of swine), had a price per head of \$4.08 (less than half the price of swine), and had a farm value of \$233,664,000 (about half the farm value of swine).

On January 1, 1910, cattle other than milk cows numbered 47,279,000, had a price per head of \$19.41, and a farm value of \$917,453,000. So, we see, as far as practical results go, the value of cattle for meat production is about double that of swine, and the value of sheep is about half that of swine. This comparison shows that pork production ranks midway between cattle and sheep for the whole United States.

There are a good many reasons why pork production is an extensive industry and will continue to be. In order to keep up the fertility and value of our farms we should feed what we raise on our farms. If we are going to supply the meat demand of this country, we are compelled to raise some kind of a meat-producing animal, whether it be cattle, sheep or swine. It is absolutely necessary and essential that a great number of the farmers do this. Swine raising is a steady money-making proposition and offers a field second to none for the farmer who likes hogs. Pork is bound to be used more and more by the working and middle class of people, and the demand for pork will continue to be strong. The business of pork production alone, combined with that of the pure-bred business, offers an exceptional opportunity.

In all this business of pork production the brood sow and her litter probably play the most important role, and upon her depends the success or failure of our enterprise.

The Brood Sow.

The brood sow with her litter is becoming such an important factor in the life of our people that world-wide consideration is being given her. One of the most valued of assets on the farm today is the brood sow and the expectancy of her litter. It is therefore necessary that due attention be given this and every other sow in order that she will produce the greatest number of pigs of the best quality the greatest possible length of time.

To accomplish this will require much thought and study on the part of every breeder of swine. Probably the greatest factor in this direction is the knowledge of the principles of breeding. If a canvass were made from farm to farm over the swine-producing states of the country, it would be surprising to know the vast number of farmers and breeders who are poorly versed on the principles of breeding. However, constant discussion of this subject in the agricultural press, through the bulletins published by the government, agricultural colleges and experiment stations, is making a strenuous effort to educate the rural population in this subject.

But a knowledge of the principles of breeding will not do it all. The animals may be properly bred and the produce show exceptional merit, but if the breeder is not a good feeder the task is not half done. A good feeder does not mean the one who feeds large quantities often and produces excessive fat, but the term implies that man, who has a general knowledge of all feeds, knows what this feed and that feed contains in food value, when and how it should be fed, understands the animals' needs and the feed to administer at all times.

And this is not all. The man may understand breeding principles as well as be a good feeder and will not make a success of the enterprise for the lack of proper methods of management. Under management may be considered the methods of housing, time of farrowing, water supply, cleanliness, sanitation, etc., each of which is of sufficient importance to require separate consideration.

Selection of the Brood Sow.

If every breeder would realize that when he selects a brood sow he is taking a chance on making or losing money, he would exercise more care and judgment and be more judicious in his selection. There is a right way and a wrong way to select brood sows in the hog business the same as any other enterprise. When the selection is made along lines followed by successful breeders and along methods which have proven successful, that selection will nearly always be a profitable one, although there are exceptions to this rule.

In selecting the brood sow one lays the foundation for a great deal of work. In many instances that brood sow is the foundation of a herd. In others it is the making or losing of money, either through large or small litters, or inefficiency of the brood sow as a mother. So, after all, too much stress cannot be put upon the importance of proper selection of the dam.

The selection of one sow is probably not as important as it is for a boar, for the reason that the boar is responsible for the litter of pigs produced from that sow. There is much importance attached to the selection of a number of sows to get the whole lot uniform. Above, the boar has been apportioned his chief influence in the formation of the young pigs. But an equally if not more important duty falls for the sow to perform. She must furnish the body of the pig with the necessary internal system to enable the complete animal to readily convert its food, so that it makes rapid

growth, quick gains, and all in all makes a profitable animal. The more important points which characterize a good breeding sow of the lard hog type are included in the following outline, and these should be kept well in mind in making the selection:

Breeding Lard Hogs.

General Appearance and Lard Hog Type—Good size, deep, broad, medium length, arched back and straight underline; short and strong feet and legs, well balanced and good style.

Breed Type and Sex Character—

Constitution, Health and Vigor—Deep, broad chest, well sprung ribs, large heart girth, good size and vigor, with healthy coat of hair and skin.

Fleshing Quality—Smooth, mellow, firm and thick covering of flesh, no roughness and not too much paunch.

General Quality—As indicated by fine hair, skin and bone; clean cut features and symmetrical development.

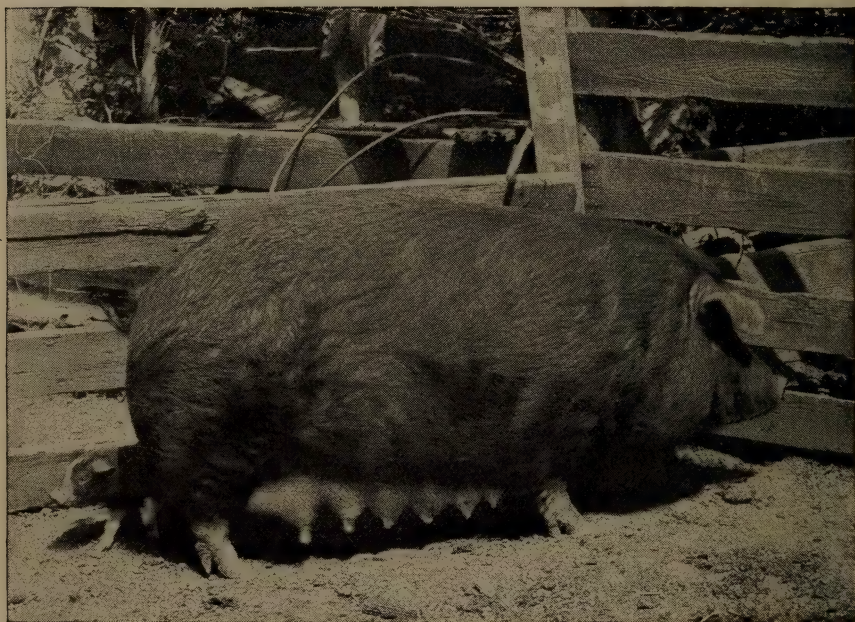
Conformation in Detail—Head, typical of breed, not large; neck, smooth, symmetrical; shoulders, snug, deep, smooth, well fleshed, not wrinkled; chest, deep, broad, girth large; back and loin, strong, thick, smooth, even width; sides, deep, smooth, medium length; barrel, low in flank, medium length; rump, broad, smooth, gradual slope; hams, deep, broad, smooth; legs and feet, strong, short.

The sow to use should show plenty of femininity. She should have a gentle disposition, which will make work and association with her a pleasant duty. A savage, barking sow is seldom found to be a good milker. Again, it is often necessary that the herdsman enter the pen of the farrowing sow to see that there is sufficient bedding, see to the warmth and comfort of the pigs, assist the sow in difficult cases of parturition, remove the after-birth, and many other such things, and if the sow is a savage one the herdsman is in danger. The writer bears scars at the present time as the result of an encounter with a mean sow while trying to arrange the bedding after she had farrowed.

Good size in the brood sow is essential. "A big, roomy sow" is a common expression among breeders. However, with this size the animal must have a strong back, strong loins and well sprung ribs. Too often the flat sides, weak loins and weak backs are overlooked because the individual has good size. Another point to be considered is to see that the animal has strong pasterns and stands up well. It is said that "an evenly made, compact sow, with quarters long, wide and deep, and on short legs, will rear far more pigs, and at much less cost, than will one of the very largest kind." Breeders are now discriminating against sows whose pasterns are weak, and many make the boast that the strain which they are breeding all have strong pasterns. This is an essential point, for the sow with strong pasterns and strong bone can well take care and carry a heavy litter of pigs properly. Experiments are now being carried on to see if weak pasterns cannot be wholly eliminated from a strain of weak-pasterned animals. It is claimed by some breeders that weak pasterns are sometimes caused by improper feeds or the neglect to feed the proper substances. It is well that breeders look into this matter thoroughly and control it before it is too late. A sow with weak pasterns in the show ring stands little chance in competition with the well-made individuals, and this is a point that the judges seldom fail to overlook.

By all means the sow should be a generous milker. Of course this point, if the female be a gilt, is not found out until she is tried, but some light

can be thrown on the subject by ascertaining whether or not her dam possessed this most essential necessity or whether or not it existed in her breeding either on the dam's or sire's side. As indicated before, the sow should have capacity enough to handle sufficient feed to make her a good milker. Therefore, a well-formed udder is very necessary. Some breeders emphasize this point so strongly as not to select a sow unless she has not less than twelve teats, and the more the better. These teats should be evenly distributed, even in size, and should all be milk giving. Avoid the sow with "blind" teats, that is, the nipple is not at all prominent. Also avoid the small teats which are generally located close to the well-formed



A WELL DEVELOPED POLAND-CHINA BROOD SOW.

teat and gives but little milk. Many breeders claim that a runt is the result of a pig having to depend on the small, undersized teats for its share of nourishment. A straight, even underline, even from front to back, with well-placed teats and well-formed udder on a sow is always appreciated. If the above statement is true regarding runt pigs, it will pay big to take precautions against the small teats and select animals who do not carry them.

Some men claim that the number of teats which a sow possesses is an indication of her prolificacy. This claim does not hold good in many instances. Some claim that the best pigs in the litter are those which suck from the teats nearest to the front legs.

An important requisite of the sow is prolificacy. This quality in the animal is found out only after trial, but by thorough investigation and continued proper selection it can be governed to a desirable degree. Prolifi-

cacy can usually be secured by selecting sows from a breeder whose herd has been bred with this particular point in view. On the number of pigs per litter and the frequency of such litters depends the usefulness of the sow and her cash value.

The more important points which characterize a good breeding sow of the bacon hog type are included in the following outline:

Bacon Hogs.

General Appearance and Lard Hog Type—Good size, medium width, very deep, long, slightly arched back and straight underline, strong feet and legs. Light waste.

Fleshing Condition—Well matured, smooth, medium thick, not too much fat, mellow, firm and even covering of flesh. Shoulders and sides very smooth.

General Quality—As indicated by fine hair, skin and bone; clean cut features and symmetrical development.

Constitution, Health and Vigor—Deep, broad chest, well sprung ribs, large heart girth, good size and vigor, with healthy coat of hair and skin.

Conformation in Detail—Head, typical, not too much jowl; neck, smooth, medium length; shoulders, deep, smooth; back and loin, smooth, even width; sides, deep, long, smooth; rump, long, smooth, even width; hams, deep, even width; feet, strong.

In answer to a number of inquiries from practical breeders, I have the following in regard to what they consider in the proper selection of breeding animals. Some of these are very detailed and after a thorough study of them before breeding animals, one should be in a fair way enabled to select breeding animals.

1. Much depends upon the selections made of individuals that make up our breeding herd. After having decided upon the breed that appeals to our own personal tastes and is most suited to local conditions, then we should choose a boar to head that herd that would have the following general characteristics: First, and above all, he must show strongly the breed characteristics of the breed of which he is a representative. Then he must show strong masculine characteristics. He must show masculinity in the head—not be too finely featured—wide between the eyes, and not fine in the snout nor the jowl. The head, neck and shoulders should blend well. The neck should be short with some crest and thickness; the shoulders should be smooth and compact on top, deep and wide between the legs, and blend well with a large, full heart girth. We should be disappointed if there were no indications of shield on the boar, thus showing a lack of masculinity, but we do not want thick, heavy shoulders. The body should be long, smooth, evenly fleshed, with a slight arch of good depth and with a wide, strong loin. The hind quarters should be long, deep and wide, well let down in the ham, and having a width equal to that of the shoulders and body. Supporting all this should be four short legs, showing good, strong bone of a fine quality, having short pasterns, and standing well on the toes. The covering of hair should be abundant and of medium quality. He should be active, not sluggish, yet docile, and of a quiet disposition. With these characteristics are usually found active digestion and an inclination to take on flesh readily.

The sow should possess essentially all the characteristics of the boar, except that she should show refinement in those characteristics that indicate femininity. The body should be long, showing great digestive capacity and

room for carrying young, and with twelve to fourteen evenly sized teats. The hind quarters always should be broad to obviate difficulty in parturition. There should always be a good width between the eyes, for narrowness in the head indicates meanness of disposition, difficulty in managing, and nervous, restless pigs. So much regarding origination or breeding.

2. In selecting a sow, a great many of the same general principles hold as for the boar. The sow should have all the characteristics of femininity, which are indicated by the clear-cut features about the head, neck, shoulders and body. The head should be short and broad without undue coarseness, having that mild expression of character which is possessed by the good mother. The eyes should be mild, large, clear and bright; and the ears of medium size and fine in quality. The jowl, as in the boar, should be full and firm, yet not large or coarse. The hair should be fine and silky, without any evidence of bristles in the coat. While the term femininity is rather difficult to define, it is in many respects the exact opposite of masculinity. The other points of primary importance are prolificacy, constitution, form, quality and breeding capacity.

Prolificacy signifies the power to bring forth young in uniformly large numbers. This is a characteristic which can not be determined by making a simple examination of the animal. The ancestors of the animal in question must be studied in determining the degree of prolificacy of a sow. It is not always possible to make an accurate study of this point, however, since only pure bred animals are recorded, and comparatively few men keep permanent breeding records. In selecting either boars or sows, it is important that a tentative selection be made while they are still suckling the mother. In this way, the size of the litter and the uniformity of same may be determined.

The mother should be an animal of strength and vigor, as it is necessary for the feed which she eats not only to maintain her own body, but at the same time nourish a litter of pigs. A really useful sow should be capable of doing this work for a period of five or six years or even longer. This requires a strong constitution, which is indicated by a broad, deep chest, large snout and nostrils, large, clear bright eyes, a broad and deep chest and plenty of capacity for digesting large quantities of food.

The form of the brood sow should be that of a parallelogram with a long, deep and broad body, standing on short, straight, strong legs, and feet with pasterns erect. The body should be compact, as this typifies a good feeding animal. The head should be short, broad and deep; neck short; jowl full and firm; shoulders broad, smooth and deep; back slightly arched; sides even, and the width of the body at the shoulder carried out to the buttock. This is a point where a great many animals are weak, the body as a whole growing narrow toward the rear quarters. The sow with deep sides and a long underline has generally great capacity, as the teats are more likely to be large, numerous and well placed. At least twelve well-formed teats should be in evidence.

The quality of the sow is indicated exactly in the same manner as the boar. The features should be clear-cut, shoulders compact, body smooth and uniform throughout, covered with a fine, silky, glossy coat of straight hair. The bone should be clean, firm and dense, with just enough size to carry the weight which the animal will be subjected to. It is better to select an animal with a bone somewhat coarse than one that has insufficient bone to carry the weight.

Without the proper symmetry and development of these characteristics, the value of the animal is largely destroyed. Select the brood sow which

has first of all health, femininity, a long broad and deep body with large capacity, and a record showing prolific ancestors.

3. There is hardly a swine growing farmer in the West who can not improve his annual crop of pigs by a more careful selection of the dams, provided he first gets in his mind a clear idea of the principles that should guide him in his choice. The foremost point that should influence him in the choice of the brood sow depends upon the fact that she is kept expressly for the purpose of being a mother to litters of pigs. From this it follows that she should be long and roomy, with a deep body, a back somewhat arched and broad and strong across the loins, for if the sow is to be prolific she must have room to work. She should have a broad, placid face, and



THE OLD TYPE "PINE ROOTERS"—"SCRUBS."

ears that are not at all of the nervous kind, because for a nervous sow the cares of maternity are apt to be too much, and neither she nor her pigs are safe during and just after farrowing time. It is, moreover, not enough for her to be able to get pigs; she must also be able to furnish them with sustenance, and this requires that she should be a good milker.

With gilts the swine grower will have to rely chiefly upon the family she comes from in estimating the probable milking quality, but with a sow that has already borne litters of pigs, watch her milk capacity and how she has nourished pigs, and in determining whether or not she is to be retained as a breeder be guided largely by the milk supply she has been able to give previous litters. She should have from ten to twelve teats, because it not only affords some indication of her capacity to have large litters, but also provides the means of nursing them when large litters come.

See, also, that she has strong bone, stands well on her feet, and has a good coat of hair. Do not fall into the very common error of selecting gilts for breeding purposes by the way they please the eye. A very smooth, short-bodied, round gilt is apt to catch the fancy, but it is the worst selection one could make in choosing breeding sows. It is preferable that the sows be, if anything, a little coarse, and if fining is desired it can be done by a suitable choice of the sire with which she is to be mated.

4. Breeders should pay more attention to the development of milking capacity than has been the case if they wish to attain the best results. It can easily be done by watching each sow's performance as a milker with her pigs. It is true that we have made wonderful strides in producing milking strains in cattle, but it is equally true that we have lost the capacity for milk production in some other breeds where beef alone was bred for. We have methods of testing the milking qualities of the cow, and we have equally as good methods for testing those of the brood sow. We test the cattle with the Babcock test, and the sow with her litter of pigs. One shows the amount of fat; the other tests the whole milk and shows equally well the amount of bone, muscle and growth-making elements in the milk.

There are certain forms in milking animals that seem to be characteristic of the milk producer, while another and different form indicates the beef or pork producer. I know from past experience that to keep up a herd of good milking brood sows they must be selected with reference to this capacity. The heavy boned, short-legged, low down, chunky sow is rarely a good milker. Those of this type make lots of pork, but it seems contrary to their nature and build to yield the nourishment up to their offspring. On the other hand, the sow built after the type of our dairy cattle, with long, deep, wedge shaped body, the lines running not so straight, making an animal not so pleasing to the eye, is, as I find it, by far the best milking sow and capable of producing the best litter of pigs. We can, to some extent, sacrifice milking quality to form, but in the cow we can not do this and make it profitable. It is generally admitted that the general-purpose cow is not as profitable for either beef or milk as one bred especially for one purpose or the other. With the sow it is somewhat different; we want a general-purpose sow that will furnish plenty of milk for her young and will care for a large litter of pigs, keeping them growing until they are large enough to eat on their own account, but we do not need, as in the case of the cow, a large amount of milk beyond this. This much, however, we must have if we are raising many pigs, because the milk is the only food that the young pig will grow upon until he gets to be four weeks old or more, when he will gradually commence to eat. If you have an old sow that will give this amount of milk, keep her. If you want to select young sows, now is the time to do it, or when they are ready to wean.

Select them from your best old sows, and to do this watch carefully the behavior of each dam as a mother, nurse and suckler, and mark the pigs then. If this is done the breeder can, in a few years, have a herd that will be a great deal better as breeders than they would be without selection. It would also be well if the boar could be selected along the same lines, keeping in mind always, of course, the form of the profitable feeder, as well as good milking and feeding qualities of the sow.

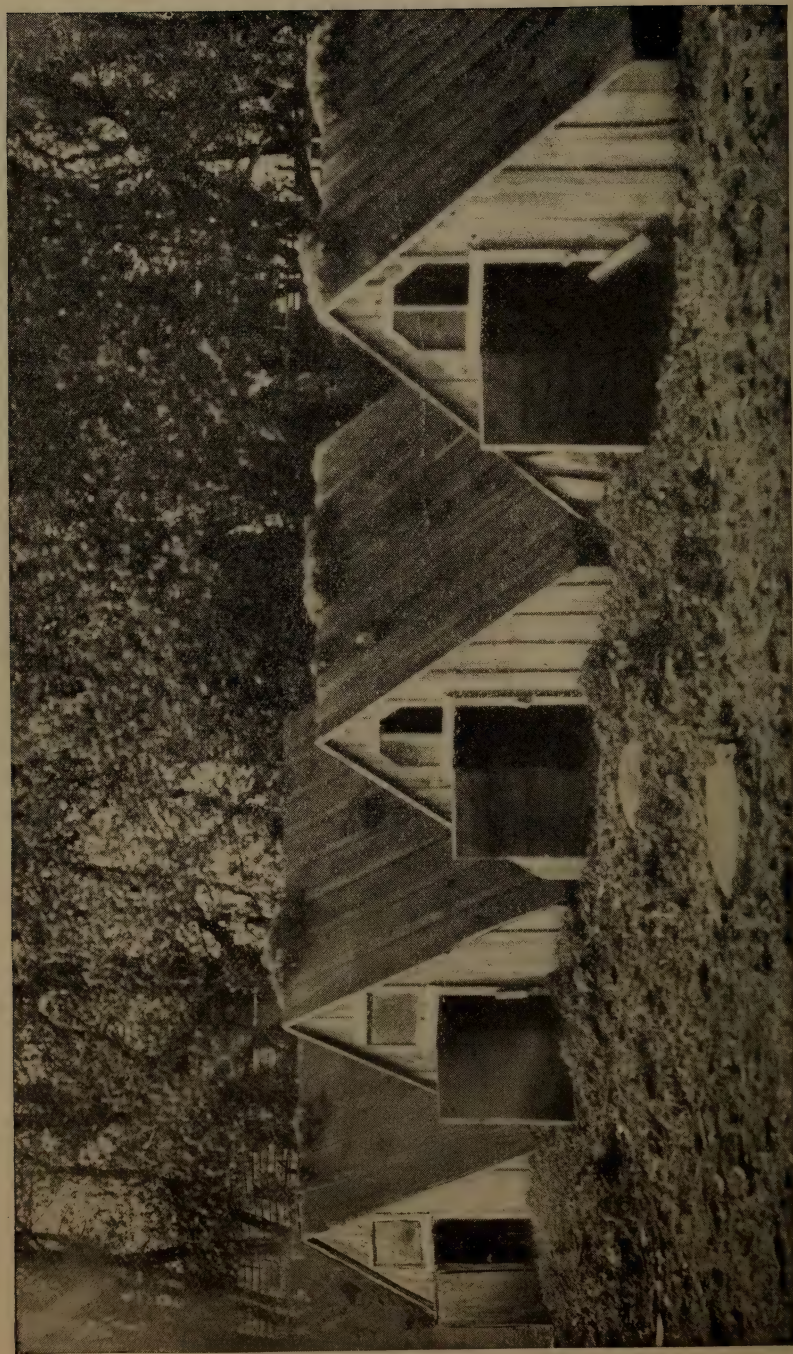
When the litters are drawing their sustenance for the first two months of their lives from the dams, it will be a good time for the swine grower to watch his brood sows to see which of them are good milkers and which are not, so that he may know what to save for future breeding operations

and thereby make sow selection. It makes little difference how good looking a sow may be nor how perfect according to the standards of her breed, if she does not give an abundance of milk she is of little or no use as a brood sow. Calves may be successfully raised without ever tasting their mothers' milk, but in profitable pig growing there is a period during which nourishment drawn direct from the udder is essential. A good sized litter of pigs makes heavy drafts on the dam during this period for the increase in weight is or ought to be great. A good brood sow must therefore give an abundance of milk. If she is unable to do so under proper management, she should not be bred again.

The owner has a duty to perform in this connection, however, and a meager flow of milk is not always the sow's fault. We all recognize the necessity for feeding the dairy cow in a manner suited to the work we expect of her. If we want milk we know we must feed milk-producing food. The same principle applies to the feeding of the brood sow. If she is to furnish a supply of milk sufficient to keep a large litter thrifty she must be fed for its production. After she is brought to full feed subsequent to farrowing the feeding should be quite liberal and mainly of nitrogenous foods, such as shorts, bran, skim milk, oil cake and the like, with oats and some roots, if possible. Sloppy foods are very useful for increasing the milk flow, and the sow should be fed very much as one would feed a dairy cow from which a good flow of milk was desired. At the same time the feeding should not be too exclusively nitrogenous, or the sow will get thin. Corn, barley and the like should also be given as condition may seem to warrant. If the dam seems to be inclined to run down in flesh too much the fattening food should be increased. The feeding of the sow during the nursing period is important. Feed for milk, and if she does not respond, don't use her as a brood sow again.

From the above letters the reader can obtain some valuable information which has taken years to collect, but in the end has meant success. The selection of breeding animals is being given more and more attention, all of which goes to make rapid strides in the advancement of the swine industry.





A GOOD TYPE OF FARROWING HOUSES USED BY JOHN FRANCIS & SONS, OF ILLINOIS.

CHAPTER II

Breeding Age of Females

The question of the proper age of breeding a gilt has not been settled definitely to suit all breeders. Some say that eight months is as young as it is judicious or proper to breed the gilt, while others prefer the animal to be a year old before breeding her. Gilts will come in heat when they are three months old if they are highly fed and well kept, and care should be exercised to see that the males and females are separated at this time.

Some base their conclusions for the proper age for breeding on the development the young female has made. However, it is seldom advisable to breed a gilt before she is eight months old. Many breeders who have sows worthy of entering the show ring do not breed them earlier than twelve months.

The fact that the young sow is seldom able to raise a fairly sized litter of pigs when less than eight months old is one of the great objections to breeding gilts early. The first eight months of the gilt's life should be devoted to her development in full and she should not be taxed to farrow and raise a litter of pigs without first having obtained her full growth. It is asking too much of the animal to have it farrow and nurse a litter of pigs before eight months of age and obtain her full growth, too. If she is called upon to do this her growth is usually stunted and her productive organs not developed properly. If she should raise only a few pigs her first litter her mammary glands do not develop properly and she rarely makes as good a nurse with subsequent litters as the sow which raises a good sized first litter.

The above is the general and almost decided opinion of the great majority of breeders; however, experiments and investigations are under way to ascertain the exactness of these statements.

Some claim that if the sow bred early is allowed rest from breeding for one or more periods after her first early litter she will secure her growth and come on as though she were never bred. The question then arises whether or not this is economical to lose one or more breeding periods in getting an early litter to let the female get her growth, or to first let the animal get her growth and then breed regularly. There is a diversity of opinion on this point.

It is bad practice to breed a mature sow when she comes in heat a few days after she farrows. A great many sows will take the boar at this time, but it is needless to say that it does not pay to breed her then. As it is she is taking care of one litter of pigs and herself, and she cannot be expected to accomplish much or do justice to herself and take care of two litters of pigs. It is the custom to breed a mature sow a few days after her pigs are weaned, provided she is in good condition and has not had such a large litter that her condition has been pulled down by nursing. It is generally accepted that a sow which has raised a large litter and is

very much emaciated and bred immediately after her pigs are weaned, will give birth to a small litter the next time. The breeder's judgment will govern this. If the sow is much emaciated she should be given a rest of from three to six weeks upon good wholesome feed, allowing her to get back to her normal condition. She should regain the vigor and vitality which she lost in bringing the previous litter to weaning time. After this has been done she will be ready to be bred again, and not before. This does not mean that the sow should be given fattening foods altogether, and be made too fat, but should be in good breeding condition. If this system is followed there will be better chances for a larger litter when the sow is bred, and will lessen the probability of a small litter. The appearance of a small litter when a sow is bred immediately after weaning a large litter and is emaciated, is a common occurrence, and strange to say, many men are at a loss to find the cause. A little nature study is not amiss here. A sow must be in good strength and be full of vigor and vitality at the time of breeding in order to almost insure a large, growthy and vigorous litter.

Some sows have trouble at farrowing time in delivering the pigs. What has been said in the previous paragraph will apply here, for if the sow is in proper physical condition, healthy, and not too fat, there need be no trouble at farrowing time. The pregnant sow must be fed a feed that is not only rich in protein, but is also somewhat bulky, so as to satisfy her appetite, and a laxative, in order to keep her system in the proper condition.

There are two general systems practiced in breeding young sows and gilts. First, that system where the females are bred at eight months of age so that the gilt will farrow her litter when twelve months or a year old. Some advantages claimed for this system are that breeding this way has a tendency to increase the capacity of the animal, thereby making her able to produce a greater number of pigs and in the long run make her a better mother. Here again comes the question of whether or not breeding the gilt at eight months tends to make her under-sized. The feed that she gets when bred at eight months is utilized to produce and suckle her litter, under which circumstances she stands great chances of not growing into the large sow that she would probably have been had she not been bred. It is for this reason that a great many men prefer to wait until the animal is twelve months old before breeding her. The men who do consider the question of lack of size through breeding at the age of eight months claim they get around this difficulty by waiting six months after the sow weans her pigs before breeding her again, thus insuring her plenty of time in which to obtain her neglected growth. This practice it is to be commended where the gilts are bred at eight months of age. Following this practice the sow is two years old when she farrows her second litter. It is claimed that by breeding for the first litter at eight months and getting a second litter at two years the good effects of early breeding are secured and the bad effects are eliminated, making the sow more prolific, a better mother, and at the same time attain her natural good size.

The second system consists in letting the female obtain her full growth before breeding her, that is, breeding the gilt so she will farrow at from fourteen to eighteen months of age, and thereafter breeding her regularly.

The system to be followed will depend upon the preference of the breeder. He will have to make his own choice. If the gilts are given proper care and attention and pushed right along until they are of good

size at eight months old, I see no great reason for objection in following the first system.

A prominent breeder of pure bred swine for the fat hog trade gives his opinion regarding the breeding of young sows as follows: "It is a common mistake, made by inexperienced hog raisers, those just entering the business, to breed their sows too young. Swine grow and develop very rapidly from the food they eat, and it is this rapid growth that causes, in many cases, too early breeding. There are some feeders and breeders who seem to assume that hogs have some faculty comparable to that of our inestimable leguminous plants, which we are told gather much of their sustenance from



A PROLIFIC DUROC-JERSEY SOW AND LITTER.

the atmosphere, and consequently do not need very much attention until near the time of their marketable age.

Now, while air and sunshine are quite essential for the life and healthfulness of all animals, hogs included, in their making use of feeds eaten, the condition remains that growth and profit depend upon the feed and its character. All successful breeding operations presuppose the inherited prepotent excellencies of individuals to be used, hence the young sow that is intended for a herd matron should be chosen from a litter sired by a good, well-defined, matured type of the male side of the breed selected, so that she may start in on her labor of well-doing with the advantage of being well bred.

The dam of the young sow should be a prolific, quiet, industrious, motherly individual, typical of her breed.

After the early selection of the future brood sow, feed and care must take

up the work of bringing her into her estate. She should be kept growing and healthy, with her mission of useful motherhood always kept in view.

Making a hog fat is not making it grow, and the young sow needs no more of the former than goes with a proper degree of the latter. Of course, she only grows from her feed consumption, and while in the first few months of life she needs about all the feed it is possible for her to consume and assimilate to make her proper growth, it is obviously an error to impose upon her thus early the strain of nourishing her unborn offspring. In fact, it is quite impossible for her to do two things—continue her growth and properly nourish her offspring—from the simple amount of feed she is able to eat; hence when the young sow is bred too early it means that her own development is unfavorably arrested and her pigs come into the world stunted weaklings.

It has been observed that producing large families of pigs is largely a matter of habit in swine mothers; that some sows bred too young seldom have large litters, and generally fail to acquire the habit of material numerical increase in subsequent litters. The assumption is that when a breeder takes it on himself to raise a good sow, and having gotten her, he will want to keep her. This being the case he can well afford to make haste slowly and profit more in the end. If he is wise he will not breed his sow until she has good growth and reasonable age.

Exceptionally well developed individuals may be bred at nine to ten months of age, but usually a year is quite early enough to breed the ordinary class of really good sows."

Frequency of Litters.

The general run of farmers through the corn belt will require their sows to give more than one litter per year. There is no good reason why a sow should not produce two litters a year when properly handled, provided that the sow is not to be fitted for the show ring. The man who is breeding his animals for exhibition purposes in competition at the shows and who wishes to have the animals hold their bloom as long as possible to make the longest circuit will breed but once a year, in order to get his sows in condition in the time between litters.

The matter of show animals does not govern the question entirely by any means. There are other circumstances entering into the decision which are deserving of great consideration. For instance, the vitality of the females in the herd has much to do with the matter. A few sows in the herd may be in such condition that it will not permit of their raising more than one litter per year, while the rest of the animals will be in good condition, not emaciated, and ready to do service again. This matter of vitality must not be overlooked, for it means the ruination of many breeding animals and the decrease in the offspring which, in the long run, reverts to the loss of money. The herd should be gone over thoroughly when the sows are farrowing, while they are suckling the pigs, and when they are weaning the pigs, and each sow given sufficient study to decide whether or not she has come through the ordeal well enough to permit of her giving birth to another litter immediately.

Then again, the matter of quarters governs the question more or less. When breeding for two litters per year the first litter should come early, or when it is usually pretty cool in the corn belt, and in the fall the same temperature is usually experienced. The letters which are quoted in the following pages of this book go to show that the experiences of practical

men have resulted in their being constantly on their guard in the matter of proper equipment and shelter for the brood sows and their litters, and no better point could be emphasized at this instance. Brood sows and their young pigs, to be handled successfully, must be properly housed during the cold winter months and damp weather.

From the discussion on the proper age for breeding young animals it was concluded that immature females should be bred only once per year, otherwise the normal growth very likely would be materially checked. It was also concluded that only strong, vigorous, mature brood sows should be bred twice per year.



HAMPSHIRE BROOD SOW AND A NICELY BELTED LITTER.

By having the spring litter come early allowance is made for the early fall pigs, which gives them a chance to get a good start before the bad weather sets in in the late fall. This is an essential point, for if pigs are once stunted by cold, damp weather, it is seldom that they ever overcome it. Good equipment and proper housing overcome this weather question, however, as has been demonstrated by breeders all over the country.

The area of land which a breeder has will determine whether or not he will breed one or two litters per year, for it is very essential that plenty of good pastures of green feed be provided and that the feeds grown on the farm should constitute the rations, which is decidedly cheaper than buying feeds. The matter of supplying sufficient green feed is receiving more and more attention in the swine raising sections. This growing

of green feeds makes cheap pork, good pork and quick gains, also building up the fertility of the land, feeding what is grown, distributing the manure evenly over the land and saves labor. As we all know, the green feeds are without a doubt the best for stimulating the milk flow, which is so necessary for the brood sows, especially when they are raising two litters per year. The young pigs like green stuff, and experiments over the country go to show that the pigs raised on good green pasture make the quickest and best gains. Of course, the proper supplements should be provided in concentrates, such as corn, middlings, etc., according to the needs.

The question of proper housing must be decided by every individual breeder. The climatic conditions would make a discussion of this question impractical here, and especially since no two men agree on housing. In the South the matter of shelter does not receive the attention that it does here. The southern breeders handle their animals somewhat differently than do the northern men. The following is the substance of a letter from a southern breeder on raising two litters a year:

"When a farmer expects to raise two litters of pigs from each or any of his sows a year he must handle the sows in such a way that will accomplish this result. There should be system in breeding the sows, this being done with reference to what season of the year it is desired for the pigs to come. For the first litter it is a good plan to breed so that the sows will farrow before the weather gets too cold in the fall and then again for spring pigs as soon as possible. Of course this requires the raising of pigs in the fall without much succulent food. This, however, is not so much the case down here in the Gulf states as it is further north. This, however, is not a difficult case if the farmer goes at it right.

"The boar should be given a small amount of corn and some oats to keep him in good flesh during the fall. He should not be too fat, but in a good, thrifty condition. During the summer most of his living is secured from good pasture, and therefore he requires but little care and attention, comparatively.

"The sows should get about the same kind of feed, but they require more of it, especially when they suckle a bunch of pigs. In that case they should be fed some corn during the summer, even when they are on good pasture.

"The little pigs should be fed skim milk and corn in adjoining pen to that of the sow. Small runways should be kept in the fence just so the pigs can get through and help themselves. They will soon get accustomed to looking for food at this place and it does not take long for them to become good feeders, and after a few months they are weaned.

"It is not a good plan to breed gilts under a year old unless they are very large and vigorous, in which case nine or ten months is the best age. When sows are with pigs the boar should be taken away, and by the time she is ready to farrow it will be well worth while to watch her very closely. She should be separated from the herd and kept in a pen until the pigs are strong and able to get about quite lively. The successful hog raiser will not forget that a little care at this time will save pigs, sometimes a whole litter, and perhaps the mother."

CHAPTER III

Time of Year to Breed

The time of year to breed depends upon many circumstances. The system of swine management which one is practicing has the greatest bearing upon this point. The kind and location of the farm is also of great importance, as well as the facilities for handling early spring and late fall litters. Here climatic conditions have an important bearing, for where winters are at all severe it requires exceptional skill, attention and equipment to make a success of winter litters. This question of time will have to be decided by every breeder individually, according to his location and surroundings.

The two-litters-per-year system is probably the one in greatest favor at the present time. It has proven to be the most profitable and popular, and where it is possible to raise two litters per year the system is to be recommended. If two litters are to be produced each year it is advisable to breed the sows in November so they will farrow the spring pigs in late February or early March. These pigs are weaned at from six to ten months old and the sows bred again for a September litter.

A great many farmers and breeders, however, find it safer to have their sows farrow in April and October. It is generally possible to give April pigs a little outdoor exercise at an early stage of their growth, which will be found a great help in keeping them healthy and thrifty. The October pigs will also be able to get outdoor exercise for a time, which will enable them to get a good start and make them better able to endure the closer confinement necessary during winter. The September litter has a greater advantage in this respect than the October litter. To have the sows farrow in April usually insures pasture at the time of farrowing, which is a point worthy of great consideration. It is necessary to breed the sows in December to accomplish this.

Gestation Period.

The period of gestation in the sow is given normally as about one hundred and twelve days. This length of time is given as the average gestation period. This is practically four months' time. An easy way to remember the gestation period of a sow, and an accurate way, is by the following easy to learn phrase: "Three months, three weeks and three days." The range in the period of gestation varies from about one hundred and ten to one hundred and twenty days. Very frequently young sows will farrow a few days sooner than the regular time, and old sows will go a few days beyond the usual time. The claim is made that litters carried much longer than the stated time are not as strong and vigorous as those who come normally. If the dam is properly handled, however, there is not much danger

of her going past the stated time over a few days, although this is not always true.

A sow will ordinarily come in heat three days after the pigs are farrowed, but, as stated before, it is poor policy to breed at this time. The sow usually comes in heat again about three days, and on up longer than this, after the pigs are weaned, at which time they are usually bred, for two litters per year, provided they have not been overtaxed in caring for the previous litter. If the sow is bred at the time she comes in heat after weaning there is little likelihood of her not settling. However, some sows will come back again.

The normal period of heat is given as every twenty-one days or three



WELL BRED AND DEVELOPED CHESTER WHITE SOWS.

weeks, except during the period of gestation. When coming in heat every twenty-one days she usually remains so for about three days.

Records for Farrowing Dates Essential.

It is absolutely essential to keep an accurate record of the date that each sow was last served by the boar to insure success. Record books are made for this purpose and can be purchased very reasonably from the breed papers and agricultural journals, and every farmer and breeder should by all means have one. In this record can also be kept observations which the breeder takes; that is, whether or not the sow farrows well without much trouble, how she suckles her pigs and how she weans them, also noting her disposition and such other details as are necessary in the proper breeding of animals. This is an excellent system to follow to breed up the milking capacity in the sows, and is practiced by the most prominent breeders. Every scientific breeder keeps such a record.

By keeping such a record one is enabled to know almost exactly when the sow is due to farrow, can make suitable preparations for her doing so, and administer to her needs in case of necessity. It is important that the sow be removed to the farrowing pen in which she will give birth to her young a week or ten days before she is due to farrow, thereby permitting her to become familiar and accustomed to the place. She will then feel easy and usually be free of nervousness. A nervous, fretful sow will not do herself justice at farrowing time and she is a hard proposition to handle in case she needs assistance in any manner. A nervous sow will, in many instances, trample or mash a large number of the litter. A sow not removed



A GOOD BUNCH OF FALL PIGS.

to a farrowing pen to herself but permitted to farrow with a number of other sows or in the herd stands to lose her litter by the other animals. Often two sows farrowing in adjacent pens will be discontented, fretful and want to fight, at a risk of the litter. Such sows should be given farrowing pens entirely separate from each other thereafter, or better, before they farrow.

The approaching time of parturition is usually preceded by the enlargement of the vulva, and the distention of the udder. Unless it be the first litter the sow can be expected to farrow within twelve hours after the udder becomes smooth and heated and milk can be drawn from the teats.

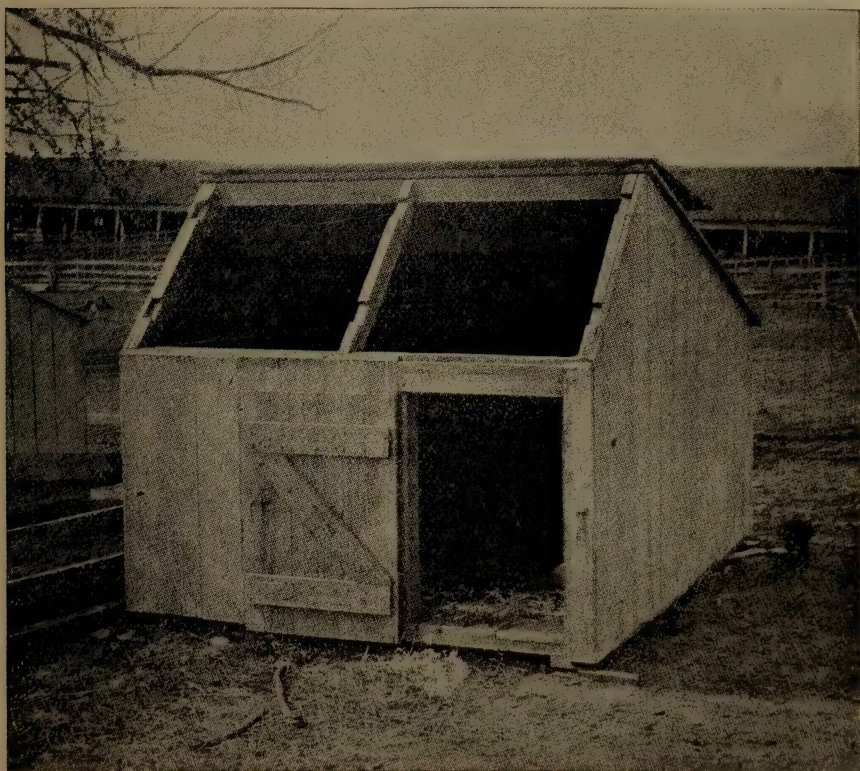
A Breeding Table.

A most useful breeding table has been made and many breeders have availed themselves of these and keep one on their desks as well as keeping one in the farrowing house. The following is a table which is very useful to have:

Breeding Sow's Time Table.

Jan. 1	Apr.23	Aug.13	Dec. 3	Mar.25
Jan. 3	Apr.25	Aug.15	Dec. 5	Mar.27
Jan. 5	Apr.27	Aug.17	Dec. 7	Mar.29
Jan. 7	Apr.29	Aug.19	Dec. 9	Mar.31
Jan. 9	May 1	Aug.21	Dec.11	Apr. 2
Jan.11	May 3	Aug.23	Dec.13	Apr. 4
Jan.13	May 5	Aug.25	Dec.15	Apr. 6
Jan.15	May 7	Aug.27	Dec.17	Apr. 8
Jan.17	May 9	Aug.29	Dec.19	Apr.10
Jan.19	May11	Aug.31	Dec.21	Apr.12
Jan.21	May13	Sept. 2	Dec.23	Apr.14
Jan.23	May15	Sept. 4	Dec.25	Apr.16
Jan.25	May17	Sept. 6	Dec.27	Apr.18
Jan.27	May19	Sept. 8	Dec.29	Apr.20
Jan.29	May21	Sept.10	Dec.31	Apr.22
Jan.31	May23	Sept.12	Jan. 2	
Feb. 2	May25	Sept.14	Jan. 4	
Feb. 4	May27	Sept.16	Jan. 6	
Feb. 6	May29	Sept.18	Jan. 8	
Feb. 8	May31	Sept.20	Jan.10	
Feb.10	June 2	Sept.22	Jan.12	
Feb.12	June 4	Sept.24	Jan.14	
Feb.14	June 6	Sept.26	Jan.16	
Feb.16	June 8	Sept.28	Jan.18	
Feb.18	June10	Sept.30	Jan.20	
Feb.20	June12	Oct. 2	Jan.22	
Feb.22	June14	Oct. 4	Jan.24	
Feb.24	June16	Oct. 6	Jan.26	
Feb.26	June18	Oct. 8	Jan.28	
Feb.28	June20	Oct.10	Jan.30	
Mar. 2	June22	Oct.12	Feb. 1	
Mar. 4	June24	Oct.14	Feb. 3	
Mar. 6	June26	Oct.16	Feb. 5	
Mar. 8	June28	Oct.18	Feb. 7	
Mar.10	June30	Oct.20	Feb. 9	
Mar.12	July 2	Oct.22	Feb.11	
Mar.14	July 4	Oct.24	Feb.13	
Mar.16	July 6	Oct.26	Feb.15	
Mar.18	July 8	Oct.28	Feb.17	
Mar.20	July10	Oct.30	Feb.19	
Mar.22	July12	Nov. 1	Feb.21	
Mar.24	July14	Nov. 3	Feb.23	
Mar.26	July16	Nov. 5	Feb.25	
Mar.28	July18	Nov. 7	Feb.27	
Mar.30	July20	Nov. 9	Mar. 1	
Apr. 1	July22	Nov.11	Mar. 3	
Apr. 3	July24	Nov.13	Mar. 5	
Apr. 5	July26	Nov.15	Mar. 7	
Apr. 7	July28	Nov.17	Mar. 9	
Apr. 9	July30	Nov.19	Mar.11	
Apr.11	Aug. 1	Nov.21	Mar.13	
Apr.13	Aug. 3	Nov.23	Mar.15	
Apr.15	Aug. 5	Nov.25	Mar.17	
Apr.17	Aug. 7	Nov.27	Mar.19	
Apr.19	Aug. 9	Nov.29	Mar.21	
Apr.21	Aug.11	Dec. 1	Mar.23	

In the above table the time is supposed to be exactly sixteen weeks, and the table shows the comparative dates of service and when the pigs may be expected, and has proven fairly accurate. Many breeders are taking another advantage of this table—its advertising value. They are printing cards, on one side of which they print their names, breeds of swine, whether or not they have any for sale, or their intentions of holding annual sales, together with their winnings, herd headers, prize winning sows,



THE IDEAL FARROWING COT.

A most excellent place for the sow to pig. The apartment is roomy and of desirable dimensions.

etc., and on the other side they print this breeding table. Its value to the breeder has proven such that when they are distributed they do the work well, and placed where they will do the most good they are indeed an excellent advertisement. I have one on my desk now which is practically the same table as the foregoing, in the form of a blotter, and my attention is called to the breeder and his breed every time I use the blotter. This was handed to me while attending a recent sale. The breed papers usually do such printing at a very reasonable rate.

On this table you find the date of service among the left-hand columns, and the date of pigging will be found in the same horizontal line in the next column to the right.

In order to save space, every day was not given, only inserting figures for every other day, so if a sow served January 2d, the farrowing date would be April 26th, as April 25th is opposite January 3d.

The Farrowing Pen.

As stated before, it is best that each sow have a separate farrowing pen, secluded if need be, separate from any other hogs. The pen should be constructed so as to afford shelter from the rains and winds, especially so in cold weather. Chilling of pigs, which often causes their death, is the result of poorly constructed shelters which admit cold winds and rains. In cold weather it is often necessary to hang a darkened lantern in the farrowing pen, if it is a portable, single pen. It is surprising to know the amount of heat this will throw off. Warm bricks packed well also answer the purpose. Where the single hog house is used for farrowing a stove or other means of heating is relied upon.

While sufficient shelter is absolutely essential, the matter of ventilation and sunlight should not be overlooked. Sunshine affords warmth, comfort and cleanliness, and no animal appreciates sunshine as much as a hog in the winter time.

Too much straw in the farrowing pen is detrimental. It endangers the lives of the little pigs in that the sow is liable to become restless and nervous and the pigs likely to be smothered. A limited quantity of short, clean hay or straw will answer the purpose, and prevent the making of a pit-bed, or a deep hole, into which the pigs will undoubtedly roll and be mashed by the sow. The difference in the quantity of bedding will have to be allowed in accordance with the temperature, not much being required in warm weather. If the farrowing pen is sheltered properly a great lot of bedding will not be required when the temperature is low. If you have secretly watched sows before farrowing you will have noted that they usually take from one to three hours to prepare a nest in which to farrow, so do not overlook supplying the bedding in due time.

Disinfect the farrowing pen thoroughly before permitting the sow to enter. This will tend to keep down the lice and mites and in many instances throw off diseases. It also insures a clean, fresh smelling pen. Too much attention to cleanliness and sanitation cannot be given and the more the better. The results of the work along this line are always remunerative.

The stationary equipment of the farrowing pen is receiving more and more attention. To some this point has little appeal, but many breeders make the statement that but for the presence of this material they would have lost entire litters. In this list of stationary equipment is included a small covered box in which are a couple of bricks, a pair of pig forceps, nippers and dry clothes. In addition to this each pen should be supplied with a lantern suspended from the middle ceiling. By having these always in the pen the trouble and worry and confusion at farrowing time is eliminated. Anything, however small, that will enhance the lives of the pigs, should be given attention. Of course where there is one large hog house and all sows farrow in the same house one set of the stationary equipment will apply for all of them. However, two sets are usually provided, such as two pairs of forceps, nippers, etc., so that in addition to the man in charge, the herdsman will have a separate set.

Many pigs are lost as a result of being mashed or crushed in the farrowing pen. Nearly every sow has a tendency to move around in the pen more or less, while the little pigs are yet too young and weak to move with the sow or to even move out of the way when she moves. In nearly all cases, however, the little pigs will make an effort to avoid the movements of the sow in order to keep from being trampled or crushed against the walls or sides of the pen, once they have been pinched. If the



ANOTHER GOOD TYPE FARROWING HOUSE.

It is found on many pig farms in the corn-belt.

bedding is shallow the pigs are able to move around in it and get out of the sow's way. To give the pigs greater chances to avoid the sow, a railing should be built around the four sides of the farrowing pen, say from six to eight or even ten inches from the sides of the pen and the same distance from the floor. The railing can be made of wood, iron piping, or poles. Many farmers use poles or wood, soaked in kerosene or some other disinfectant, which they claim serves the purpose of the rubbing post and helps to keep the pen smelling fresh and keeps lice away.

This railing should not be overlooked in any farrowing pen, as it is a great preventive against the sow crushing the little pigs between herself and the wall. The railing does not have to be stationary, but should be firm so it will not be knocked down by the sow or pigs and death to the pigs result.

Young pigs need plenty of sunlight. Light, but especially sunlight, is of wonderful importance in the promotion of good health. Dark quarters in a hog house or farrowing pen are as detrimental there as in any other house. Sunlight furnishes warmth too and the pen should be so arranged that the young pigs will have advantage of the sunlight whenever they want it. When this want is supplied it is a source of thriftiness in the pigs. Swine growers agree that damp, dark weather is detrimental to the health of the young pigs. If pigs are born during this kind of weather they are usually very unthrifty and appear stunted. If they are farrowed in dark, damp quarters the result is the same. Sunshine, and plenty of it, should be arranged for. Under northern conditions the seasons are such that the question of sunshine is an important one. The admittance of the sun should be through windows on the south side of the pen through which the most sun comes and the warmest winds blow in winter and the coolest in summer.

In the northern sections of the swine producing belt the winters are severe and warmth is essential in the piggery. The spring of 1912 was indicative of this. However, warmth at the expense of ventilation is worse than none at all. Often a pen is very comfortable, so far as warmth is concerned, but the air in the pen or house is foul and not fresh. The pigs would do better if the temperature were low and the pen well ventilated. Prevention of draughts should not be overlooked, for draughts are extremely injurious to pigs, the same as it is to the human. A moderately cold pen, ventilated well and draught-free, is preferable to a heated or warm pen in which the air is foul and damp, and the pigs will suffer less discomfort in the former than in the latter. I know a breeder who follows the plan of putting himself in the pigs' place and decides what is best for himself, then arranges accordingly for the pigs. He is a very successful breeder of hogs. The sows or older hogs can stand much more cold than the young pigs, and it is therefore necessary to give them special consideration when the pigs are farrowed during cold weather.

By all means the farrowing pen should be dry. If the floors or walls are damp the pigs, if farrowed in cold weather, will chill and suffer a setback from which they may never recover. If the pen floor is of dirt it should be dry, but not dusty. If dusty the pigs will likely cough and choke, which is decidedly bad for them. If the pen appears damp, bedding should be supplied early that will absorb the moisture, after which clean it out and supply fresh bedding. Damp cement floors and walls are very detrimental and in the construction of any house the greatest precautions should be exercised to see that the house is dry, thoroughly ventilated, warm, and free from draughts. Thorough ventilation almost insures dryness. The most important qualities of a farrowing pen are comfort, convenience, dryness, ventilation, sunlight, freedom from draughts and warmth.

Under the topic, "Care and Management of the Brood Sows During the Winter Months," will be found some timely suggestions in regard to the preparation of the farrowing pen, light, heat, ventilation, etc., from practical men.

Condition of Sows for Breeding.

Sows in medium flesh will conceive more readily and bear a greater number of young if they are bred while gaining in flesh. Swine breeders are beginning to realize this more and more, and it is becoming a general practice to have the sows gaining in flesh at the time of breeding. They should not be fat at the time of taking the boar, for this is indeed a bad condition. If fat the pigs are liable to be small and unthrifty and the sow will have trouble at farrowing time. What is termed "medium" condition is the ideal condition in which to have sows at breeding time. In securing this medium condition, don't underfeed the sow and have her very thin and half starved. The disadvantages of this condition are easily seen, for the sow would require all the feed fed her to nourish her own body at the expense of the forming litter. When the sow is in this



AN UP-TO-DATE PIGGERY ON MAPLE FARM, ILL.

condition the litters are small and weak and the sow suffers. Proper condition is very essential where the sow produces two litters every year and it is almost necessary to feed grain at all times to get her into the desired flesh for breeding at the proper time.

At the time of breeding it pays well to have the sows quiet. Treat them kindly and have the sow gentle from breeding time to farrowing time. If free from excitement at the time of breeding she is more likely to conceive and the litter is said to be larger. She will also permit the attentions of the attendant at farrowing time, if necessary.

Obtaining Large Litters.

It has been said that a large litter of heavy, vigorous pigs at weaning time is the foundation of profits. This is true without a doubt. To secure it, prolific sows and the boar from a prolific strain must be selected. The boar must not be given over service and the pregnant sow must have the feed, exercise and care that will keep her in best health and condition and that will produce thrifty development in the unborn pigs.

At and after farrowing time the sow must be given shelter, bedding, feed and care that will carry her through this period with the least disturbance and save all her pigs in good condition.

The size of the litter will depend quite largely on the individuality and prolificacy of the sow and her general care and treatment. Age will influence prolificacy within certain limits. Young sows with their first farrow do not generally give birth to large litters, and this is quite well, since if six or seven strong, healthy pigs are raised to maturity, the young sow has performed her part well. Older and larger sows will, as a general thing, bring larger litters, and raise them satisfactorily. There is a reason for this, however, and it should be carefully considered before a young sow is discarded because she brings small litters. The mature female, that is, one having her normal growth of bone and muscle, can spend all of her energy in nourishing her pigs with the exception of that portion used in maintaining her own body. Young sows, on the other hand, have a third mission to perform, and that is the nourishing of the growing tissues, bone and muscles. If additional effort must be made by the young sow to nourish a very large litter, this task must be performed at the expense of the normal growth of her own body. Give the young sow a fair trial. It is far better to raise six or seven strong, healthy pigs than to raise nine or ten weaklings. Take into consideration all the factors influencing size of litters. Even seven or eight strong boned, healthy, vigorous pigs is enough for the mature sow, and especially is this true if she farrows twice each year. Give the females a fair trial, and if they do not come up to standard, after a second farrow, discard them. Do not expect a dozen or more pigs in each litter. If you have a female capable of doing this satisfactorily, retain her, but on the other hand do not expect every animal in the herd to equal this record. This is an exception, and ordinarily seven or eight pigs to the litter properly cared for will return a very satisfactory profit.

As the pigs gain in size and strength, the sow must be fed to develop her highest milk production, the young pigs must be taught to eat grain and other feeds before they are weaned. The weaning must be done so that the pigs are in fit condition to shift for themselves when they leave the mother and the sow's udder must be left in perfect condition for suckling the next litter. These things look formidable to the beginner, and he is likely to consider that the expense will be too great, but successful methods are not a matter of expense but of good judgment and skill and daily attention to little details.

When making the selection, get a young sow whose mother and grand-dam have eight or more good pigs at a farrow, good milkers, have a quiet, feminine disposition. The selection should be made from a strain that has been handled properly and one that has been given a ration well balanced. The type of the animal should be such as has been described in previous paragraphs. The breeding gilt should be given every opportunity for rapid growth and development, but should not be fattened. Plenty of exercise at all times is essential for the health and development of the female. Breeding at the proper age and when the sow is in proper fleshing condition is also necessary. Experimental data goes to show that well bred, properly handled sows improve in their size of litters as they grow older.

The boar, as is commonly said of him, is half the herd, and attention must be given to him, for if he is not the proper individual, the size of the litters cannot be large. The objects to be sought in the boar are those of strength, vigorousness, activity and healthiness, and therefore energies in

the care of the boar must be guided in that direction. A boar that has not yet reached maturity will require a narrower ration than the one that has, for the reason that he is building up his vital organs, muscles and bones (parts built up largely of nitrogenous or proteid material), while the mature hog is but maintaining his. The mature boar should carry a sufficient amount of flesh to insure a thrifty, healthy appearance. An overabundant amount of flesh is not conducive to exercise, and consequently places the boar in an inactive condition, and a somewhat less active condition of the cells themselves. Exercise is the prime essential with the boar.

To induce exercise, he should be given plenty of range with an abundance of pasturage. If his lot be divided so that forage crops of rape and cowpeas or alfalfa may be given, then along with this pasturage but little grain need



YORKSHIRE SOW AND LITTER OF FOURTEEN PIGS.

be given. The nature of the grain ration of the mature boar will depend upon the nature of the pasture. If he is being pastured on a proteid pasture his ration should be balanced with a small amount of bran or middlings slop. At the time of the breeding season the ration should be increased so that he will be gaining in flesh. The reason for this is that it has been found if the boar and sow are gaining in flesh at this time that they are producing a greater number of reproductive cells that are more active and strong than in hogs that are simply on a maintenance ration. These cells, then, being of a greater number and more vigorous, there will be large, even litters of pigs.

For winter feeding again the boar should not be confined to too small a yard, and if he refuses to take exercise he should be induced either by driving him about or by making the distance between the sleeping and eating quarters greater. Let his ration be balanced to about 1:5 or 6, and consist of corn, bran, alfalfa meal or hay, and shorts. Barley and wheat are also good feeds. Make his ration rather bulky. The addition of a few

roots, one or two mangels per day, makes a very good appetizer, and helps to regulate the bowels.

The sow should be served but once, for one service is as good as a greater number. The boar should be limited to two sows per day, provided he is mature, and every second or third day he should be given rest. If he is handled along these lines he will last for fifty sows. It has been shown by actual experiment that boars doing excessive service have an influence in producing weak and unthrifty pigs, and sometimes a large number of them come dead. It is not necessary for the boar to run with the sows. The breeding crate has revolutionized this. This is also a good way around breeding a light weight female to a heavy boar. It is claimed by successful breeders that allowing the boar to run with the sows is a good way to decrease the number of pigs in the litter.

The boar used on the sows should be mature, and usually a boar is called mature at twelve months, but not always a twelve months old boar is mature and a proper one to use on the sows. Other things being equal and up to standard, a boar should be twelve months old before breeding. The fully matured boar produces the greatest number of healthy, thrifty pigs.

Care of Sow During Gestation.

The sow should be kept in good, strong condition during the period of gestation, but not fed so she will be overloaded with fat. Sows kept in fairly high condition have produced satisfactory litters, but they were made to take plenty of exercise. Under any system of feeding, the sow should be made to take plenty of exercise during the gestation period. If the sows do not take ample exercise during this time they cannot be expected to give satisfactory results, but if they do get sufficient exercise they can be assisted mightily in farrowing a strong, thrifty litter of pigs. We often speak of correctives for swine. Many breeders maintain that exercise is the best corrective they can give. Overfed pigs and sows are known to come through all right when they were given plenty of exercise. The following from a practical breeder on the subject of exercise brings the point out admirably: "Though exercise is important in the case of the boar, it is doubly important with sows during the period of gestation. Without considerable exercise during this time, sows cannot be made to give satisfactory results. In summer, pasture should be provided in which there is plenty of shade. A good pasture affords ideal conditions for sows, the green food and the exercise keeping the sows in the best possible condition."

The greatest difficulty will be encountered in giving the sows sufficient exercise during the winter. Where only a few sows are kept, it is often possible to give them the run of a barnyard, where they will take exercise rooting among the manure, or working among scattered straw or chaff, to find what little grain it may contain. If a dry, well bedded sleeping place is provided, which is free from draughts, the conditions are about as good as can be obtained. When it is impossible to use the barnyard, a roomy shed with earth floor and a sleeping place arranged in one corner, can be made to answer the purpose very well. By littering the shed with cut straw or chaff every day, the attendant can induce the sows to take considerable exercise. Another method is to use portable pens set in outside lots. The pens should be placed facing south, and fifty yards, or more, from the feeding place. If kept well bedded, and banked about the bottom with strawy horse manure, they make comfortable sleeping quarters. The sows

are forced to take exercise in walking backwards and forwards between the pen and the feeding place. It is better to keep not more than five or six sows in a pen of this kind, and care should be taken to provide plenty of trough room. The troughs should be placed on dry ground, or on a platform, and it is preferable to have them in a place that is sheltered from the wind. This letter is indeed an important one, for it fully covers the matter of exercise. Pasture in the early spring, summer and late fall, with plenty of fresh water and shade, will provide a means of exercise during these seasons. With a good pasture, plenty of fresh water and shade, the sows will keep in excellent condition. But when winter comes difficulty will be encountered in getting the sows to take exercise. It is the nature of swine to eat all they can hold, then go lie down until the next meal. This is exactly what the sow will do in the winter time, and will doubtless get too fat and out of condition. Many schemes are resorted to in an effort to make the sows take exercise. The water trough is placed at the opposite end of the yard or run from the sleeping shed, making it necessary for the sow to walk twice the length of the yard for water. Where but a few sows are kept they can be allowed to use the barnyard where they will take exercise rooting around in the manure heap and straw and chaff, as described in the above letter. Many feed grain to the sows in winter as poultrymen feed their hens, scattering it in a deep litter and making the hogs root for it.

Proper handling and care will give the largest returns from the sow at farrowing time. A sow is kept to raise pigs and the number of pigs that she has at weaning time is the important thing. The sow should be fed before farrowing the same kind of feed that she will receive afterward. If the feed is changed the sow is likely to be thrown out of condition. The feed given her should contain a sufficient amount of protein and should be laxative in its nature. This will have a cooling effect upon her system. A week or ten days before the sow is due to farrow (be sure to keep strict account of breeding dates) remove her from the rest of the hogs and put her in a place where she is to farrow. A few days before the sow farrows, cut down on her feed and if one can judge close enough, the last twenty-four hours she will be better off if she just receives water to drink. If the sow is feverish she is likely to mask the pigs. Provide the sow with a moderate amount of bedding, as discussed in a previous paragraph. Keep the floor dry. It is well to be around at farrowing time but don't let the sow see you any more than possible, and do not disturb her. If the pigs come in cold weather it is well to hang a lantern in the top of the cot, which makes quite a difference in the temperature. If the sow is as gentle as she ought to be and the weather is cold, it might pay to take each pig away from the sow as she farrows it and put the pigs in a box filled with hot bricks until the pigs become dry and active enough to put with the sow. This is where the stationary equipment plays its part. Pigs have long naval chords, and if the sow is quiet, it is well to break these off short.

For the first twenty-four hours after farrowing the sow should be given nothing but water. The pigs are not able to take much, if any milk at all at that time, and if you give feeds to the sow the milk flow is stimulated right away so that probably the next day when the pig is able to suck he will take more milk than he actually needs and get old milk, which usually results in scours. Keep clean, fresh water before the sow all the time. The sow is usually feverish and drinks lots of water. Take the chill off of the water when it is right cold. The first feed that is given her should be small in amount and given in the form of a thin slop. The feed can then be increased gradually until the pigs take milk and she is

getting all she will eat. There is little danger from the sow eating pigs account of not getting feed before and after farrowing, because she is not thinking much about eating. She is in too much pain. Ordinarily, about two weeks should be taken to get the sow on full feed, which means feed enough for milk flow.

The following is a quotation from an authority on swine feeding and management, regarding the care and management during the gestation period:

(1)—During the period of gestation the sow should be kept in good, strong condition, but not overloaded with fat. Extremes in condition are to be avoided. The very fat sow is apt to be clumsy with her pigs, and sometimes her pigs are few in number or lacking in vitality. On the other hand, the very thin sow will either not do justice to her pigs, or will become a mere wreck herself during the time she is nursing her litter, and the chances are that both these things will happen. A sow may be kept in fairly high condition and still produce satisfactory litters, provided she takes plenty of exercise.

In districts where corn is plentiful, there is a temptation to feed sows almost exclusively upon corn. Such a method of feeding cannot give the best results, besides corn does not furnish enough bone and muscle forming constituents to properly develop the unborn pigs. It is also rather too fattening and heating to feed in large quantities to a sow at this stage. It is true that corn may be fed, but, as in the case of the boar, it must be fed with judgment. The ration recommended for the boar, namely, equal parts ground corn, ground oats, and wheat middlings, will answer very nicely for the sow. The proportion of corn is better to be not over one-third of the meal ration, and wheat middlings or bran may be used to dilute the corn meal without oats. In cold weather, if sows have a good deal of outdoor exercise, they may be fed more corn with safety than when they are kept pretty closely confined. A meal ration which is preferred by the writer to all others, is equal parts ground oats and middlings, leaving out corn altogether. It is possible, however, to use a wide variety of foods, so long as the feeder realizes the importance of furnishing considerable bulk, and of restricting the proportion of heating or highly fattening foods.

As in the case of the boar, the sow requires something besides meal, and the furnishing of some such foods as roots, or alfalfa or red clover hay, is even more important than in feeding the boar. Skim milk is also excellent, but is not often available for sows.

In summer, a pasture field will furnish the bulky part of the ration, and if sows are in good condition to start with, and are given a good pasture, they will get along very well without other food for two or three months. They should be given a little meal for several weeks before farrowing to accustom them to its use, and render the change less violent when they are taken into the pens. With regard to the quantity of meal, the feeder must be guided entirely by the condition of the sows.

Meal may be fed either wet or dry. When roots are fed, a good plan is to mix the dry meal with pulped roots, though the feeder has wide latitude in regard to the methods he may see fit to follow. When sows are fed outdoors in cold weather, very little water should be used in mixing their feed. It will be found better to furnish them with water separately, should they require it. If they are fed roots, they will take very little water in cold weather. It should be seen to, however, that they have water when they need it, and in hot weather, an abundant supply of fresh water is very important.

CHAPTER IV

The Pig Crop

All of us who are interested in growing swine want good litters, and we want to raise them all. Whether they are all raised or not will depend to a considerable extent on the feeding before and just after farrowing. The sows must be fed for the work they have before them, with suitable food in sufficient quantity, guarding as well against overfeeding as against insufficient feeding. The very common fault in feeding sows is giving too much corn, a fault that arises from the fact that corn is usually plentiful, cheap and convenient. As a fattening food it has no superior anywhere, but it is just this kind of excellence that makes it unsuitable for a dam that has brought or is about to bring forth young. Probably as good a diet as can be given a sow that is shortly to farrow is one composed of bran and shorts at the rate of one pound of the former to two of the latter, with a little corn once a day. Ten days before the litter is expected, take away the corn entirely and increase the proportion of bran in the bran and shorts ration, so as to give more bulk and less concentration. If farrowing time be approached and prepared for in this way there will be little difficulty with the litter when the time comes. After farrowing, the sow will need nothing but pure fresh water for twenty-four hours, and then thin bran slop may be given; thicken it gradually and add shorts, so that in the course of two weeks the sow shall be receiving a liberal ration consisting chiefly of bran and shorts, and a little corn. Avoiding heating or too highly concentrated food from this on, let the aim be to feed liberally to keep the dam from losing flesh without making her fat. Watch for early symptoms of scours or constipation, and if this difficulty is apprehended a slight change in feeding, in the direction of a dry ration or sloppy one, as the case may require, will usually correct the trouble.

The litters should be made comfortable on their arrival, and with early litters especially this makes the farrowing pen a matter of great importance. I will not enter here upon the vexed and much disputed question as to what is the best farrowing pen, but there are a few points about which there can be no dispute. These have been discussed in previous paragraphs.

Pig-Eating Sows.

To prevent sows eating young pigs, and occasionally a sow will be found which will do this, remove the sow from her pigs one hour after she has been fed (feed her three times a day) keeping her away from her pigs until the time comes for each feeding. Do not fail to give her some vegetable food between meals. If in spring or summer, turn her to grass. It is said that the feeding of one salt herring two or three times a week will be of great benefit to the sow. During the winter alfalfa hay will be of great benefit to sows who eat their pigs. When sows show an abnormal nervous

condition, brought about by general constitutional derangements, therefore proper feeding and keeping the sow from her pigs when in this condition will overcome the evil.

It is claimed by some that the tendency to eat their young is sometimes caused by allowing sows to eat the afterbirth. As a precautionary measure, the afterbirth should be promptly removed from the pen, but there is little doubt that the trouble is generally caused by a fevered condition in the sow, often induced by injudicious feeding before farrowing, or even after farrowing.

There are many remedies suggested to overcome this pig-eating habit of the sow. The feeding of salt pork to the sow has been suggested, as well as the cracklings left from rendering lard are sometimes used. Tankage is usually included in a sow's ration and many breeders claim who use this in their rations that their sows never have a tendency to eat their pigs.

Once a sow has acquired the habit of eating her pigs it is very difficult to break her of it, and unless she is a very valuable animal the best thing to do is to fatten her for the market.

The Runt.

"A runt in every litter" is almost as common a saying as "There is a black sheep in every flock." What the cause of the runt pig is in some litters and the system to follow in avoiding them are questions yet unanswered. Many theories are advanced, some of which are plausible, but the runt is still with us. It is said that the method of feeding is at the bottom of the matter. A great many people have not given enough thought to the fact of the feed of the litter before they are farrowed. But if you will reflect, you are bound to acknowledge that their growth comes from feed through the sow; therefore, the necessity of feeding the proper kinds of feeds. It must be suitable to bring out the best results. The feed is given primarily to the sow; it must maintain her and feed the pigs. The feed is taken into their bodies through the navel instead of the mouth.

Therefore, if the feed is not sufficient either for the sow or the litter, or the full portion of them, some are bound to suffer. The one that suffers most and grows the least is termed a runt. Sometimes there are more than one that for some cause are inferior to the balance of the litter.

When pigs are eating from the trough a weakling is crowded to the end, and even pinched entirely out part of the time. He does not grow like the balance. Now, the inferior pig of the litter may be located at the end, or in some way not favored as the others for getting the full or equal portion of the nutriment from the mother. Or it may be that there is an unnatural position for one in which the feed source of supply is twisted, preventing it from getting the full or equal amount to one of the pigs, and the failure of the supply is the runt.

It is best to feed a proper and wholesome ration and give good care to the sow, which is best for her and the growing litter and may have a tendency to do away with runts.

Feeding and Care of Young Pigs.

When the pigs are born the attendant should be on hand to see that everything goes well. If the pigs are strong, and the sow lies quietly, it is better not to interfere. Sows that have been properly fed and given sufficient exercise seldom have difficulty in farrowing. If the pigs seem somewhat weak, or if the sow is very restless, it is safer to place the pigs in a

well bedded box or basket to keep them out of the way until all are born. If the pen is chilly, a bottle of hot water placed in the bottom of the basket and covered with a blanket, with another blanket over the top of the basket will help keep up the vitality of the pigs. The pigs should be placed to the teat to suck as soon as possible. The weaker the pigs or the colder the pen, the more important an early drink of the mother's milk becomes. If parturition is not unduly protracted, and if the pigs are strong, lively and comfortable, they may wait for their first drink until all are born, but in such matters the attendant must use his judgment. In cases of difficult parturition, a pig that is apparently lifeless can often be revived by opening his mouth and blowing in it. To be successful this operation must be performed as soon as he is born. A chilled pig can sometimes be revived by immersing up to the neck in water heated to the temperature of about 98 degrees. When removed from the water he should be rubbed dry, and induced to suck if possible. Many breeders recommend a swallow or two



CHESTER WHITE BROOD SOW AND LITTER.

of brandy. As soon as the sow appears to have settled down quietly, it is best to put the little pigs with her and leave them together. It is well not to interfere except when it is absolutely necessary.

By the time the pigs are about three weeks old they will have learned to eat. If at all possible, it is a good plan to give them access to another pen in which is kept a small trough. Here they can be fed a little skim milk with a very little middlings stirred into it. The quantity of middlings can be increased gradually as the pigs grow older. If they can be taught to nibble at sugar beets or mangels during this time, so much the better. A small amount of soaked whole corn, or almost any other grain, scattered on the floor of the pen, will cause them to take exercise while hunting for it. If it is not possible to provide an extra pen, the sow may be shut out of the pen while the pigs are being fed. Many people simply allow the young pigs to eat with the sow, and many good pigs are raised in this way, but better results will be obtained if the pigs can be fed separately. Exercise is very important for young pigs, and every possible means of securing it must be adopted. If they are kept in a small pen with the mother, some of the best of them will likely become too fat, and will probably sicken

and die. Outdoor exercise is especially beneficial, but the pigs should be protected from cold winds, or from a very hot sun. If the sow is turned out with her pigs, it is not well to give her a very large range at first, as she is likely to travel too far and unduly tire the pigs.

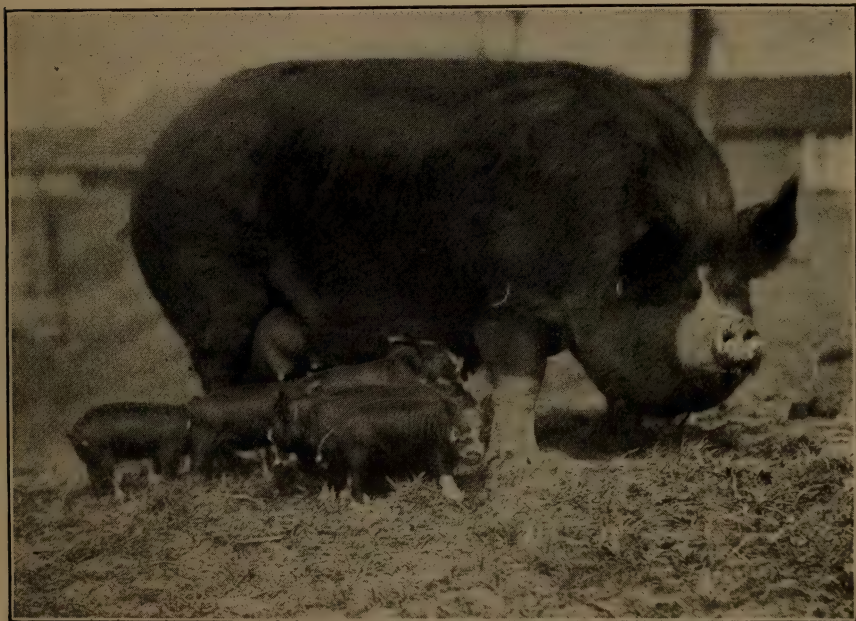
There are three prime essentials to good results with pigs, i. e., sunshine, exercise and feed. There are several things which cause trouble with young pigs, one of which is scours. By feeding the sow as soon as she farrows the milk flow is stimulated and pigs are not then able to take the milk, but are, after a couple of days, able to take it, at which time the milk is old and causes scours. Scours is usually caused by one of four things, i. e., by changing the feed of the sow, by overfeeding, dirty pens and troughs, and exposure of either the sow or the pigs to cold weather of any kind in such a way that they will become chilled. Changing from sweet to sour feed often causes scours. Feeding too much protein when the sow is not used to it is also another cause of scouring of pigs. Indigestion causes scouring. Pigs should always be in dry, clean quarters and be fed in clean, fresh troughs. Do not allow them to run around in the cold and rain. Sows running through filthy lots and then being suckled by the pigs often has a tendency to cause the pigs to scour. The remedies for scours are numerous. Probably the first thing to do is to cut down on the feed and clean up the quarters of the sow and pig and disinfect thoroughly. Then give a tablespoonful of sulphur in the sow's feed once a day for two days and then skip a day and repeat until better results are obtained. It is said that if the sow is given a good physic of epsom salts or castor oil it will help and probably stop the scours in the pigs. Scalded milk is also recommended by many. Keeping charcoal before the sow and pigs all the time is a good preventive. Dried blood is also often given, the dose being a big spoonful. When the scours are caused by indigestion the above named remedies are good. White scours is a contagious form and involves more complicated treatment and the local veterinarian should here play a part. A good physic is necessary, and a general clean up and thorough disinfection are in order.

Another dreaded ailment of the pigs is thumps. Thumps occur as a result of lack of sunshine and too much feed, together with a lack of sufficient exercise. When thumps appear it is very necessary to cut down on the feed immediately and force the pigs to take exercise and take it in the sunshine. It is sometimes claimed that thumps is the result of too much dust in the pen of the pigs, but ordinarily dust will not cause a pig to have thumps, although it will cause severe coughing, which is not at all good for the pigs.

Feeding.—The fastest and cheapest gains are made on pigs before weaning time. The pig before weaning time is able to utilize more feed in proportion to its weight than at any other time. The best way to feed young pigs is through the sow, always. Feed the sow some good milk producing foods, and corn and linseed meal will probably give as good results for the money spent as any feed for the sow. A good ration is shorts 20 parts, cornmeal 10 parts, bran 10 parts, linseed oil meal 5 parts or tankage $2\frac{1}{2}$ parts.

The young pigs will ordinarily begin to eat at from four to five weeks of age and should be given a good palatable ration high in protein. There are two different systems of feeding, i. e., feeding the pigs separately and away from the sow and feeding the sow and pigs together, as mentioned before. Skim milk in a shallow pan is a good feed to start the pigs on.

Some shorts, linseed oil meal and a little bran in the milk makes a good ration for the pigs, provided they get sufficient exercise. It is hard to teach the pigs to eat separately from the sow, but when they once learn it is better for them, for they can be given a ration that better suits their needs. But do not give the pigs more than they will clean up nicely, for if this is done the feed will probably be left there until or just before the next feed and will sour. If the pigs eat this sour feed after having been used to sweet feed scours is usually the result. It is always advisable to not give the pigs more than they will clean up well in fifteen minutes.



A WELL DEVELOPED BERKSHIRE SOW AND LITTER.

In order to ascertain just what methods are followed on the swine breeding farms of this country, and to get the actual systems followed by the most practical and successful men, one must get in touch with these men. In the following pages will be found outlines giving in the breeders' own words their methods and systems followed in caring for the brood sows and their litters, and some most valuable suggestions and pointers will be found in these pages. Very few systems followed are identical, but after looking carefully over the systems used by the men who have contributed to this subject, it will be found that there is very little deviation from one general system. Beginners always wish to know how practical men handle swine, and a study of these contributions should have an important bearing with them.



CHAPTER V

Handling of Brood Sows and Their Litters

By Breeders.

(1)—As I have had considerable experience, and, I believe, a fair degree of success, in raising hogs, and as my methods are different from those of most men, a little of my experience may not be out of place. The sows from which are to be raised my future crop of pigs are allowed plenty of range and all the feed they will eat. They have free access at all times to a self-feeder where plenty of feed is always on tap, also to waterers where, whether the weather be warm or cold, they can slake their thirst with good, fresh water. When the weather is very cold it is impossible to keep these waterers from freezing at night, but a kettle of hot water in the morning fixes them all right, and the way the hogs keep them running in the daytime prevents their freezing. I have tried both large and small pens for farrowing and I prefer the small ones. My ideal farrowing house is made ten feet wide and 28 feet long, divided into four pens, each seven by ten feet. The house is about three feet on the north side and seven feet on the south, the roof and north side being double boarded, with tar paper between. There are no windows, but two feet of the south side are hinged in each pen, so that it can be let down to admit the sunlight. Two small yards are in front, each two by four rods and two pens open into each yard. The sows are allowed free range in a clover pasture till within a day or two of farrowing time, when they are placed as quietly as possible in one of these pens. I aim to allow them plenty of exercise as long as I dare, and frequently do not shut them until I see indications that they are about to farrow. At such times I am with my sows most of the time. I do not shut a sow in a small pen unless I am certain she is about to farrow, as lack of exercise on the part of the sow is bad for the sow and bad for the pigs. If they were in thin flesh it might not hurt them so much, but as fat as mine usually are exercise is necessary. When the sow is shut up she should have a moderate supply of good, dry bedding. I do not think that it makes so much difference what kind of straw so that it is perfectly dry, for small pigs will stand plenty of cold weather if no draft or air strikes them and they have a dry bed, while if their bed is damp a very little cold will kill them. If it is necessary to fix anything about the sow's pen after she has begun making her nest, or even when she is farrowing, I go about it and do it as quietly as possible. I used in such cases to talk gently to her but have learned from experience that she is at such times not at all interested in my praises or my flattery, and I have adopted a good deal better plan which is not to speak at all. After the pigs are farrowed the sow should have water but no feed for twenty-four hours; then only an ear of corn, and the feed should be gradually increased until about the fourth day, when she should have about what she will eat. If I have two sows farrow about the same time when the pigs are two or three days old I put them

together, and especially if one has a small litter and the other a large litter. By this method the one having a large litter is relieved of part of her burden and the other is not injured, while the pigs are kept warmer between the two sows than with one. In moving a sow and pigs I give the sow slop or milk outside the pen and when she is diverted I lift each pig carefully by the tail (for a pig lifted by the tail will seldom squeal) and put it into a sack or basket, then close the door of the pen, take the sack or basket of pigs to their new home and with the aid of a gate, or better still, a herder, guide the sow to where her pigs are. Do not in any case attempt to drive a sow away from her pen with a whip and stick and move the pigs to the new pen before you do the sow. Having but slop for my pigs, their subsequent life involves but little work. They are allowed free access to the pasture, the self-feeder, and the waterers, and in the course of a few weeks they obtain a considerable part of their living from these sources. They are allowed to run with the sow, however, till she weans them, which will be in from eight to ten weeks. My sows never run down thin in flesh, and a short feeding period after weaning makes them ready for market. It is my aim to keep the pigs growing from the time they are born till time of sale with as little work and attention as possible. Pigs raised in this way are never troubled with thumps, which is caused by too much feed and too little exercise. For feed in the self-feeder I have used corn, but prefer corn and cob meal and if a hundred pounds of oil meal is added to each load of corn and cob meal, so much the better. I have my pigs come in the spring from March 20 to May 20 and in the fall from August 20 to October 1 and sell them at from twelve to fourteen months old, weighing from 300 to 375 pounds. These are not large weights but are correct. I raise over a hundred pigs each year and while I know my methods are not "orthodox," I am entirely satisfied with my plan.

(2)—The first important item in the management of brood sows is to have them gentle, so you can be in the pen with them at farrowing time. Have your pigs so that they are easily petted and always in good humor. Put each sow in a pen by herself one or two days before her time to farrow. Feed her soft feed, such as ground oats, bran or shorts, for about two weeks before she has pigs. The sow will not be feverish as when she is fed on a corn diet. After the sow has farrowed let her be quiet for twenty-four hours before you give her anything to eat. If she seems to be thirsty give her some water to drink. After one day give some warm slop or milk, a little at a time, increasing until you can give her all she can drink. Give her some corn, a little at a time, until you have her on full feed, and let her have access to a good clover pasture. Now we are ready to care for the little pigs. First see that they all suck the first time the sow gives down her milk, then take each one and break off their tushes, two above and two below, so they will not bite the teats. If they do the the sow will get up and in the confusion kill one or more. They will fight and bite one another's heads, causing sore eyes and head. This can all be avoided by breaking off the tushes. As soon as they begin to eat in the trough with the sow, give them a pen so they can go in and out as they please and give them a trough. Give them all the milk and slop they can eat, plenty of corn and the run of a good clover pasture. They will grow very fast and weigh from 200 to 250 pounds at six months old, provided they are from a good sire of one of the leading strains. I think it pays to have a pure-bred sire, as you will have better sows and better pigs.

(3)—Sows fed much corn while pregnant make poor mothers, do not give a full supply of milk, are likely to be clumsy and the pigs are likely to be small and weak. Peas, shorts, tankage, skim milk, and alfalfa, clover, cow peas or peanut hay or pasture are the feeds to give the sow to develop strong pigs at birth.

Corn is deficient in the bone, muscle making, and blood making materials necessary to develop the unborn pig. If the sow does not have these materials in abundance, the pigs are small and weak and the supply of milk is poor. A sow fed corn without enough bone and muscle making materials to supply the demands of her unborn pigs is often so feverish and unsatisfied that she eats her pigs when they are born. All the alfalfa



A GOOD BUNCH OF POLAND CHINA PIGS.

hay she can eat daily or a good supply of skim milk are cheap feeds and are unequalled as a balance to corn.

Constipation in the sow or sucking while she is pregnant must be avoided. Pig eating is often caused by constipation. Laxative and bulky feeds, such as pasture or hay, will prevent this trouble, and should form part of the daily ration. Exercise is necessary to keep the bowels in good condition. Small feeds of roots are good. Heavy feeding of roots is often the cause of weak or dead pigs at birth. Feeding frozen roots is likely to cause abortion. The pregnant sow should be fed, sheltered, exercised and handled in such a way as to keep her in good flesh and health. Everything that facilitates this condition tends to secure pigs with greater vigor and more profitable as feeders.

A blow or a strain of any kind to the belly of the pregnant sow is likely to result in pigs dead at birth, or pigs born the wrong way, with the consequent injury to the sow, or her death. A boar allowed to run with sows

that are bred will frequently knock them around and bring the same trouble. Horses or cattle running in the lot with brood sows will often injure the sows the same way. Not over five or ten bred sows should be allowed to sleep together, as crowding in cold weather may result in losses at farrowing time. Pregnant sows should not be allowed to run with fattening pigs.

Two weeks before the pigs are expected the sow should be placed in a farrowing pen connected with a dry yard large enough to allow her to exercise. Her bowels should be kept loose. She should have dry, sunny shelter, free from drafts. The sow should be petted so that she will like her feeder to handle her.

It is best for the sows to farrow at nearly the same time, and then the owner can watch them day and night at farrowing time. There should be just enough bedding for comfort and dryness. Cut straw or chaff is best. Little pigs often get tangled in deep straw and are either crushed by the sow or die from exposure. Give the sow as little attention as possible while she is farrowing, unless she must have assistance. In severe weather place the pigs as fast as they come in a basket in which a blanket is laid over a warm stone. Keep them well covered, and after all are born and have become dry, take them to their mother and place each one at a teat. Then cover the mother and pigs. During the first forty-eight hours watch them carefully, and if a pig strays from its mother put it back against her body where it will be warm.

Give the sow all the water she wants during the first twenty-four hours after the pigs are born, but no grain. Take the chill off the water in cold weather. For three or four days after the first twenty-four hours, give plenty of water but feed grain sparingly. Then slowly increase until, when the pigs are three weeks old, the sow is having all the feed she will consume. Give the pigs exercise and sunshine from birth, but do not allow them to get damp nor to be exposed to the wind.

When the sow is given a warm, rich slop or other milk producing feeds just after her pigs are born a strong milk flow is forced. The new born pigs get too much and have diarrhea, which often kills them. They cannot take all the milk, and the sow's udder becomes inflamed and caked. When the pigs suckle the pain becomes so intense that in desperation she jumps up and kills and eats them.

(4)—My father always had excellent success with his sows at and after farrowing time, and I never considered it due to luck. I have observed his methods, also the methods of others, have had my own experience, and have read a little, too. As I do not consider my education complete I am always glad to learn from the experience of others. I will speak of ordinary farm conditions, never having had experience with costly houses heated by steam, etc., which in my opinion emphasizes the essential points, namely, warmth, dryness and light. If the little porker on making his advent on this mundane sphere, meets with the above mentioned conditions, his chances are good for survival. But each year most of the pigs make their advent in rail pens which will necessitate care and watchfulness, and then very likely the losses will be heavy. A rail pen can be made warm and dry, however. I find that under ordinary farm conditions March pigs are a delusion and a snare. Of course, if one is prepared with proper house (and by the way, a very comfortable house can be erected very cheaply), one can save a very good per cent of early pigs. But, unless one is so prepared, he should not have the pigs put in an appearance before April. The selection of the sow is the first thing of importance. A good, roomy, gilt

of a prolific family, whose mothers were good milkers, is essential. I am not so particular in regard to the male's ancestry in regard to prolificness, as I consider the female the prime factor in the number of offspring, but I would also prefer the sire of my breeding sows of a milking strain. A variety of feed during pregnancy is desirable. Some discard corn, though I never do, though I do not feed that exclusively. I find that the sow craves cooling and laxative food, and as slops, vegetables, etc., seem to meet the demand, I provide them for her. A few days before farrowing she should be separated from the rest and assigned her quarters; then watchfulness and attendance at the critical period, and the chances are that you will have a nestful



A GOOD THRIFTY SOW AND HER LITTER.

of rustling piggies that will do your eyes good to see. Do not be in a hurry to disturb the sow to give her something to eat, but have water so that she can get a drink; just pure water, then gradually give her something solid as she demands it. You can tell by observation. If one can't, he can't raise hogs. About the ninth or tenth day after farrowing she should be on full feed. Don't overfeed and cause a feverishness in the sow. Many a promising litter is lost in that way. I never lost but one litter in that way. I knew better but I was just starting to raise Poland-Chinas, and I suppose I got impatient to get some nice pigs. In about four weeks the little fellows begin to eat, then prepare a side table where the dams cannot have access. Give them what they will eat up clean, and then see them grow. Milk is the ideal food, but good mill stuff makes an ideal substitute. Of course a grass lot for the dam and litter must be furnished, or its substitute. Good pigs can be raised without grass, but it is more expensive. The above is just a rough outline, and one can vary his work by his ability and surroundings. I had good success last fall with litters, by just letting the sows run in a large woods pasture, letting them farrow out in the brush. I lost but two pigs out of five litters. Spring is a more difficult season, and, as a general thing, the sow is not in as good condition, neither are the youngsters as strong, owing, I am satisfied, to improper feeding

during the winter. I believe in having the sows in good condition at farrowing time; also aged sows do better than gilts as a general thing.

(5)—This is a question that should interest every farmer in America, especially those living in the corn belt. In all branches of the live stock industry for the last decade the hog has been in the lead. The hog is the farmer's ready cash. He brings in more money in less time than any other stock on the farm, and yet he is less cared for than any other stock on the farm. Many farmers think that if a brood sow has plenty of corn she ought to give good results. The ewe and cow are well cared for while carrying the progeny, but the sow is too often fed exclusively on corn and compelled to gather it from the mud and filth. She is given no shelter and then the owner complains if she doesn't bring forth a large, healthy litter of pigs. Have dry, comfortable sleeping quarters for the sow, feed her liberally and regularly on flesh and muscle-forming food and have a proper pen to farrow in. The pen should be warm and kept dry; situated so that the sun can shine in it. The pigs cannot grow without sun. Place her in the pen a week or ten days before farrowing time, so she may become accustomed to the quarters. Keep her quiet and gentle, see that her bowels are in perfect health, and she will have but little trouble in farrowing, and will bring forth a litter that will be active, healthy and strong. Bed the sow with dry and clean bedding—hay or wheat straw; don't use oat straw. After she farrows don't disturb her for twenty-four hours, then give her a good drink of clear water. Do not offer any encouragement to her to eat, let her come of her own good accord. When she exhibits an appetite, give her a feed of slop of bran seasoned with salt. The pigs will not begin to tax the sow until they get to be a week or ten days old. Don't be in a hurry to rush the feed on her. By the time the pigs are a week old they should be following her around and taking exercise; if they don't, compel them to take exercise or they will be troubled with thumps and costiveness. The only way this can be avoided is to make them take exercise and feed through the sow such feed that will tend to take away the difficulty. Fresh cow milk is excellent, also bran and oil meal, but avoid corn. When the little fellows are three or four weeks old they may easily be taught to eat, placing a little milk in shallow trough and offering it to them. With a little patience you may have them eating nicely in a short time. When two months old they should be eating a slop of bran, shorts and ground oats. Fill a box with a mixture of ashes, salt, charcoal, sulphur and copperas, and place it where the pigs will have access to it, and by good judgment and plenty of good, wholesome food they will be ready for the market when eight months old and should weigh two hundred and fifty pounds. When they are ready to sell don't hold them for a higher price, for nine cases out of ten you will lose money.

(6)—In choosing brood sows one should be very careful as to the shape of the sows, not selecting a sow with narrow shoulders and hips. I recommend a sow with smooth hair, short nose, and short ears. When selecting your sow be sure to get good breeds. Do not feed your sows too much corn. Three or four ears a day will be enough. Corn is heating as well as fattening, and a fat sow will not bring as good pigs as a sow that is a little poor. The average brood sow ought not to weigh more than 225 pounds. Keep your brood sows in a place by themselves where you can feed them as they ought to be fed. Shut the sow up in a small pen, about a week before farrowing time. Some may think that this is a long time, but I think not. The sow will get acquainted with her pen, being shut up in a small place,

and will not get restiess. Do not feed the sow any corn two or three days before farrowing nor for two or three days after farrowing. The bran is cooling and starts the milk in good shape. Always have your pens open to the south, so that the sun can get in, and have the pen on a side hill, if possible, so it can be drained. Also have a good part of the pen under cover. I build my pen sixteen feet long and eight feet wide. If you cannot have your pens on a side hill you will be wise in putting a floor in the sleeping part, even if you do not all over it. Have your trough staked down, so that the sow cannot have it all over the pen. I have been engaged in raising pigs for two years. This year I raised about 98 head and sold them at an average price of \$4 per head at weaning time.

(7)—There is no subject of more importance to the farmer or breeder than that of the brood sow. The number of pigs in the litter and their health may be traced largely to her care, which depends somewhat on her age and varies according to the way and manner in which she has been previously kept on feed. For as much as four weeks before she is bred one should not slop, as sloppy food makes them hard to catch. After safe in farrow the slopping should be continued, with a small amount of corn in ear, given twice per day until one or two weeks before farrowing time. Care should be taken at this period, as a bucket of slop just before farrowing will do the same harm as it will do if it is given just after the litter is farrowed. In either case it will cause a rush of milk to the udder by exciting them to extra activity, and as a result the udder may become caked and congested. This is evident by the pig ceasing to make proper growth, scours, the hair turning forward on the pigs, and in many cases chronic sore mouth and scabs over the head. On the other hand, it is just as wrong to deprive the dam of food at gestation period for one or two days before farrowing and three days afterwards as it is to give too much food at that period. We so often hear it said by old breeders that the sow will naturally hide away for a day before she farrows and will remain with her litter for as much as three days afterwards without coming out for food if she is not watched. This is not true by any means. She has not been deprived of food during these three or four days, as there are always more or less dead pigs in the cleanings, which, in every case, the sow eats directly after she has delivered her litter. Then she is prepared for a fast of two or three days. The tendency now is to watch her at this period and throw out of the pen all dead pigs and the afterbirth; in a great many cases the sow makes a raid on her pigs if she is deprived of food too long. If the afterbirth is removed the sow should have a handful of oats each time she comes out for food for the first two or three days. Give water also as sparingly. After three days and for three weeks, feed sparingly and in no case as much as they can eat. I prefer to feed mostly dry oats for the first three weeks, then change to corn until they are six weeks old, and then begin to slop the dam. There is danger of scours if one slops before six weeks, and even at this time one should use great care what they use as a slop. I have found that rye and shorts physic the pigs, and have used it with bad results. The best and most harmless slop I have found in my experience is oats ground to a powder, with a little old process oil meal ground and added. It should vary according to the age of the litter. As soon as the pigs are old enough to drink milk they should be taught to drink milk. Be sure it is sweet until the litter is at least two or three months old, as it will physic them if it is sour. I have grown litters of pigs that have averaged thirty-four pounds at forty-four days old,

and sixty-three and a half pounds at sixty days old. The dam and litter should have plenty of exercise daily by having access to a large pasture. Good and proper food combined with exercise produces systematical development of all parts. I never feed pigs all they can eat of corn as it is too heating. Keep them hungry and they will exercise and get a better growth. I believe that too much corn is the source of one-tenth of the diseases that frequent the swine industry. I have had the best results not to allow my pigs to touch water until at least of a hundred pounds weight. This may seem to many a violation of the laws of nature, but the fact may be demonstrated by slopping first, no matter how thick the mixture may be and then offering water. The water will not be touched if offered after the slop. This proves the fact that the system has been provided with all the water necessary. If water is given first or they are allowed to have access to it, then their stomachs have not the capacity for the proper amount of slop. If the pigs have access to water they will often lie in the shade in the after part of the day, and just before or about five o'clock they will fill themselves up with water. Measure your slop and be convinced how much less they will take in this case, and how much less they gain in pounds. I raise two hundred pigs each year and have never had a case of cholera, swine plague or thumps in my herd or on my farm.

(8)—Upon the care, feeding and general management of the brood sow during gestation, especially the latter part, depends in a large degree the success or failure of the young pig-crop. In the first place we should select the best sows, and those of a quiet disposition for the best breeders, and avoid inbreeding. The brood sow should be in good condition, but not too fat. Concentrated and fat forming food, like corn, should be fed very sparingly. It is better to feed sloppy food made of ground oats and bran. Brood sows can be fed very cheaply on roots, such as turnips or mangels, with the addition of some ground feed and bran. I would not be without the bran, especially during the last month or two before farrowing. It is very essential that brood sows have plenty of exercise. To get this give the sows the run of a good sized yard or pasture. Give them a good warm place to sleep in. If nothing better is at hand they can be made quite comfortable in the straw stack. With plenty of exercise and a light, but nourishing ration, we have a perfectly healthy sow in place of a sluggish and feverish one. About a week before farrowing time place the sow in a good warm pen, along the sides of which, about eight inches from the floor, and also from the wall, place a round pole. This will help to prevent the sow from laying on the pigs, as often happens, especially if the sow is feverish and sluggish. After the pigs are farrowed feed lightly for the first few days, then increase until the sow will eat all she is fed, but not corn. If the young pigs get too fat they are likely to get the thumps. To prevent this they should get some exercise. If in cold weather and they cannot be let out, get into the pen and hustle them around. Have your sows tame, or it may be difficult to get into the pen if you should want to. Get the sow and pigs out on grass as soon as possible. It does not pay to keep them in small pens, waddling around in mud and slush up to their knees. Plenty of good grass (clover is preferable) will help to reduce the cost of production, and this is the vital point in these times of fierce competition.

(9)—I think brood sows the hardest things to take care of on the farm, as in them lie all your success in hog raising. The sows, after being bred, must have exercise in both winter and summer. I raise two litters a year, and I feed corn and oats ground together and skim milk. I have a house

four by five feet for each sow, and shut her up six or eight days before farrowing and keep her in until the pigs are large enough to take exercise. I then let them out of their pens and let them go back at night to sleep. As soon as I can teach the pigs to eat I feed them by themselves in a pen made close by. As soon as they are large enough to wean I take the sows away and let the pigs have the houses to sleep in. I feed them three times a day all they will eat up clean, for if you feed them more than they will clean up you will have trouble. I do not feed the sow anything but water for two or three days after farrowing, and then feed gradually until her pigs are ten days old, then give her all the slop she will eat three times a day. If the pigs get the scours take the feed away from the sows and feed three or four eggs in what feed you give her and they will get



TWO EXCELLENT BROOD SOWS.

over it in a few days, unless it is caused by sleeping in wet beds. I always give my pigs new bedding every three or four days in cold weather, and in warm weather I do not give any.

(10)—While the management of the brood sow, long before she farrows, is of great importance, I shall keep within the prescribed of the discussion and talk of her management at and after farrowing time. The sow should be put in her farrowing quarters about a week before farrowing. She should have a liberal allowance of short straw, chaff, or dry leaves for bedding; not less than seventy-five pounds. The notion that a scant bed will prevent the sow from lying on her pigs is a mistake. Give her a good bed, with ample time to make it before she farrows, and

she will lie still much longer than if she were lying on a scant and hard bed. The sow's feed for some time before farrowing should be largely of thin slops of bran, shorts, ground oats or barley, with enough ground oil cake added to make it decidedly laxative. As slop is not masticated it should be mixed a considerable length of time before being fed so as to be in solution as near as possible, and for this reason all grains ground for slop should be ground as finely as possible. Whether or not one should be on hand to assist when the sow farrows is a mooted question and can only be answered after we know the capability of the person. A capable assistant can, in many cases, be of great service. While a novice will often do more harm than good. In the case of aged sows in high condition, I would offer this advice: Be with the sow when she farrows, rub the pigs dry and put them in a barrel in one corner of the pen. Put plenty of straw in the barrel and have a sack to cover it, and if the weather is quite cold a warm brick may be put in. After the sow is through her labor put the pigs with her and see that they all get a taste of her milk. After this all the pigs should be put back in the barrel and may be left there four or five hours without injury to the sow or pigs. If the sow is quite fat it will be safer to keep the pigs in the barrel a day or two, letting them suck every two or three hours. If the weather is hot give the sow all the cold water she wants, both while she is farrowing and after. The sow should not be deprived of a drink for twenty-four hours after she farrows, as some advocate, especially when in hot weather. How much feed the sow should have for the first ten days after she farrows depends entirely on the sow and the size of her litter. By examining the litter the practical eye will very easily determine how well or how poorly they are nourished. If the little fellows' jackets are wrinkled and if they squeal much, and continually tug at the teat, more feed is needed, but it should be increased gradually. If they are very plump and sleek and sleep much, scours or thumps are likely to appear at any time. And these sound sleepers are often overlaid and smothered before they awaken.

For all but the expert I believe the safer plan is to underfeed a little. A litter slightly underfed I consider of more value than one of the same age with scours or thumps. I have complained of more than one sow because she would not give her pigs a good start, but when fall came I found her pigs to be the best in my lot.

For thumps give the pig exercise, and what is just as important, give the sow exercise. If the weather is bad and exercise impossible take the pig from the sow and keep it away for a half a day. Reduce the feed. For scours give the sow salt and copperas, and see that the bed is dry. Charcoal is an excellent preventive. Reduce the feed.

(11)—I always keep my brood sows in very good flesh until time to farrow. I like to have my pigs come about the last days of March. I have a warm place for them, and by the way, it does not have to be costly to be made comfortable for the little pigs. The first three days after the sow has farrowed I feed a little bran made into a slop, and after the first day a little milk added makes a good feed. After this, if they do well, I give some corn, ground feed and bran, and all the pure water they want. Teach the little pigs to eat when young by having a place where they can drink milk that the old hogs cannot get to. They will soon eat wheat, oats, or shelled corn. Give them plenty to eat, a good clean place to stay and sleep, and just see them grow.

(12)—The sows that are intended to be kept for breeding should be separated from the other hogs for some time before breeding. They should

have plenty of range and pasture if it is possible for them to have it, and they should have alfalfa or clover hay, but the supply of corn should be limited. Instead they should have oats, ground barley or rye, and occasionally a feed of bran. They should have salt and ashes where they can help themselves to it, and if the cobs in the feed lot are raked together and burnt, and some ear corn thrown onto the fire to be parched, they will eat it readily and it is good for them. If a man expects to have any success with the pigs when they come he should know when to expect them and to know this he should have a record of the breeding of each sow in his herd, and should prepare to take care of them at farrowing time. He should have each sow in a farrowing pen a week or ten days before the pigs are expected, during which time they should not have much, if any, corn, but should have a liberal supply of bran, made into a thick mash, and some oats. He should be on hand at the critical time and be ready to give assistance if necessary. Sometimes it may cause him to lose a few hours sleep, but if you fish you must expect to have to cut bait. The first day after farrowing the sow should not have anything but water, the second day she may have a little bran and oats, and gradually increase on the amount for a few days. A little shorts or ground feed may be added, being careful not to give her all she will eat even of this for two weeks, and no corn for this time. For the next week or ten days the amount of corn should be limited, and its effect on the youngsters should be noted carefully. I think I may safely say that all or nearly all of the trouble that the pigs have at this time, or in the first four weeks of their lives, may be charged to overfeeding the sow. At four weeks old, or sometimes sooner, the little fellows will commence to eat, and if they are provided with a little shorts mixed with sweet milk, in a clean trough, in a pen where the sow cannot get to it, it is surprising to see how soon they will clean up and come again expecting to find more. The sleeping pen should be open part of every day, and it should be so arranged that the sun will shine on the bedding, which should be changed often. If the weather is chilly and they are inclined to lie in the bed too much, they should be got out to exercise. When they are five or six weeks old they can be pushed by feeding them as above stated, but more and oftener. Care should be taken that the feed does not sour before being fed. If the sows and pigs have a good pasture to run on the sows will do well if nothing but corn is fed them, but the pigs should be pushed, and the better they are fed the less they will depend on the sow, which is better for both. If one litter is all that is expected they should not be weaned until about twelve weeks old, and then it should be done by moving the sow to another part of the farm, and the work is done.

(13)—I have found in the care of brood sows that you have to commence as soon as they are bred. Feed roots, clover hay, oats, bran, shorts and corn, but do not get them too fat. About ten days before due to farrow put them in separate lots or pens and feed nothing but thick slop. When due to farrow remove the bedding and give a little short straw, but not much. If cold I stay with the sow, but if quiet and warm do not disturb her. If the litter is all right do not disturb them for twenty-four hours. Then give the sow a drink of a quart of bran in two gallons of water. If the sow acts hungry increase the amount of bran. The third or fourth day commence to give stronger feed, but be careful and not overfeed. By the fourteenth day you can have the sow on full feed. Make a crib as soon as the pigs move out and put feed in it for them. By the time they are four weeks old they can eat almost anything and they will soon about

wean themselves. At seven or eight weeks shut them away from the sow and feed all the slop they will take, and some corn, and it will do you good to see them grow. If the sows are in good pasture at farrowing time all they need is shelter and plenty of water and they will take care of their litter for ten days without other feed.

(14)—It seems to me that this subject is not exactly stated correctly, as it ought to be in my opinion, "before, at and after farrowing time," for if they are not properly cared for before farrowing time very often all the pains taken at or after farrowing time count for nothing. I find it best to feed very little, if any, corn for some time before farrowing time, but in lieu thereof bran and mill feed mixed, or ground oats, with occasionally a little oil meal. Always for several days before the sow is due to farrow place her by herself and keep as quiet as possible, and do not allow her to have too much bedding. Keep a good watch over her at farrowing time and don't allow her to gorge herself too much with feed. During farrowing time disturb her as little as possible, and allow her to lie quietly until she has brought forth all her litter. Then commence to feed gradually, not allowing her to eat to the full for several days thereafter. Let her feed be the same as that upon which she has been fed for a month or six weeks before farrowing. If several sows are to run together in the same pasture it is a good idea to have them farrow as near the same time as possible, as it is often the case that when some of the pigs are so much older than the others, the older ones get to robbing the younger ones at suckling time, which is evidenced by a large number of runts in the herd. As soon as the pigs show a disposition to eat with the sow (and it will not be long), I then make a place convenient with the feeding troughs and in which they can go out of the way of the sows, in which I place a shallow trough and keep feed there for them. Be careful that their feed does not get sour. I think it should be fresh and sweet. I soak the corn I feed them, and with it mix meal feed and bran. Ground oats is also excellent. I once came very nearly giving my little pigs the cholera by feeding them feed that had soured. I believe there is more cholera given to hogs by improper food and contaminated water than from any other source. Too many think a hog is a kind of filthy animal, and it matters very little what they eat or drink, and there is where you make a fatal mistake. Crowd your pigs from the age of birth to the age of six, seven or eight months and then sell, and you will make the most clear money out of them. Winter none but your brood sows and boar.

(15)—With a personal experience extending over only four years in keeping brood sows and growing pigs, it may be thought that I know very little about the subject. I speak of the business as it occurs on a general farm, where diversified farming is followed, and not as a specialist giving exclusive and particular attention to swine breeding. The general farmer grows hogs for sale for pork, and to that end a good stock of hogs, hardy, thrifty, and that will mature early, is to be sought for. Whatever breed you have, change the male hog often enough to prevent breeding to his own progeny. For good, strong litters of vigorous pigs I want sows two years old or over. "An old sow's pigs are a week old when they come," and there is little danger of loss among them. With a bunch of fifteen fully aged brood sows I am satisfied with one litter a year, and that is what I breed for. I prefer spring pigs, but if from accident they fail or are lost, I have had good luck with pigs that came in August. I don't want them any later. I am rather indulgent with young pigs, and for the first three months of their lives they have the run of the place. They do no real

damage, and I like to see a hundred or more of them scampering about the premises. If a gang of ten or a dozen are attracted to the kitchen door by the aroma of the cooking dinner it don't take much of a "shoo" to start them towards their proper quarters. My sows in the winter are quartered by themselves in a two-acre lot, with a log house four feet high and covered with straw, where they sleep and find shelter. They are about half fat, and I feed them some corn, with plenty of good well water, and a ration of wheat and oats well mixed. In sowing spring wheat it is a good plan to sow oats with it. I have tried this on a few acres and it brought me



A BROOD SOW AND HER LITTER ON PASTURE.

about two hundred bushels of the mixture, and I have never found a fanning mill that could separate it, so I am using it for feed and I find it all right. At farrowing time, in April and May, if the weather is favorable, I will turn the sows to pasture and let them alone. Two years ago I had a hand who insisted on helping the sows at that time, and as a consequence two or three of them died. Since that time I have said hands off, and the sows have generally come through. I do not deny that watchfulness is necessary, and sometimes intelligent assistance may save a sow and her litter, but I firmly believe that meddling midwifery is a great evil that should be carefully guarded against in all stock breeding and raising.

(16)—Feed no corn for at least a month before farrowing; feed shorts, oats or ground barley, or better, mix them all together, using equal parts by weight of each. Do not get the sow fat, and for twenty-four hours previous to farrowing feed her nothing. Never disturb her to offer her food or drink until she leaves her nest, which is usually the second day after farrowing. Give no drink but slightly warm water the first day or two. Feed no corn, but give a few oats or light bran. Do not feed rich or sour swill, as it will surely produce scours in pigs and will make uneven litters, if not kill them all. Give the sow no slop, but pure water until the pigs begin to suck her dry. Then increase the quantity and quality enough to hold what flesh the sow had at farrowing. As soon as the pigs will eat out of the trough, keep milk or thin slop made out of shorts and water in the trough where they can eat at any time. Keep salt and ashes before them at all times, as it builds bone and aids digestion, destroys worms and increases the appetite. If the pigs have all they can eat out of the trough they will stop sucking of their own accord at from forty to fifty pounds each. For cough, give in the slop two table-spoons of turpentine with the same amount of linseed oil for each pig, and repeat the third day if the cough continues. If they won't drink this give powdered santolin in the slop, an amount equal to a large pea for each pig of thirty pounds or more. Keep pure, cold water before them at all times, if in no other way in a barrel with a waterer to drink out of. This is very important, as it keeps the water clean. Change the bedding twice a week and always keep it dry. If no pasture is handy, give clover, weeds, cane, sweet corn, beets, or most anything that is green. Exercise is good but not absolutely necessary. Keep the pen clean and dry. Never allow a wallow hole unless in a running stream. Treat a hog decent and he will make you a profit at present prices. This treatment has kept my hogs free from diseases more serious than thumps for more than thirty years.

(17)—The hog has been a great source of wealth to the diligent farmer in all sections of the country; prolific in increase, of early maturity, always marketable; therefore you will find him present everywhere. Yet to thoroughly understand how best to manipulate him and care for his increase and welfare are questions that require some consideration and much experience. Your care for good success should begin before the farrowing time, not only in becoming yourself acquainted with the hogs but having them know you so as not to be wild and afraid. Do not frighten or scare them, feed not too much corn unless it is well soaked with water or milk. Feed plenty of slop and for two or three days have the swill or slop greasy, even if you have to use lard or tallow, or even some salt pork, as it will save you a fine litter of pigs. Have a nest of chaff, and have your nest fixed so that the little ones can slip under the bottom board if they get crowded. The hogs should have plenty of exercise and the nest should be fresh and dry. After care would include warm slop, no corn for ten or twenty days—ground wheat, oats, barley, rye and corn mixed would be good enough for swill, with some oil meal. The pigs will soon learn to eat shelled corn if you will have a place in the fence where they can get through to a small lot by themselves. Then teach them to go for the swill, for the old saying holds true, "A good swill pail makes fine hogs," and for success in all young animals (even young children) you must get a good, large stomach on them, so that when you come to the time of fattening they can do justice to all the feed you give them. Of course, you have a good pasture for them—clover is the thing. If they are kept in a pen or dry lot I am unable to see any money. But for a good range, fair care and a good cool shady place to sleep in

when the sun is one hundred or one hundred and five in the shade will help to increase the ready funds and make the whole household smile.

(18)—Certain defined principles in breeding and care of swine, when strictly adhered to, will most assuredly prove a success. I desire to give my methods and experience for many years.

Begin your breeding by selecting choice sows from your last spring's pigs. Put them by themselves, where they can exercise. Have your male hog selected from any of the standard breeds, or as high grade as possible. The beginning should be from the 1st of December to the 12th of December, but no later, and by February 15 discontinue breeding. There is nothing in particular to do until 112 days are about up; then prepare to have a nice place for each sow and soon enough to be sure you are in time for safety. Give attention to every detail, clean bedding, feed and water. Corn is the principal feed. As the pigs grow older so they can eat corn they can, with mother, be turned out for exercise when the weather permits. Ring the sows; let them have good clover pasture, or the next best, with an abundance of feed, from the day you turned them out until you begin to make a selection next December from the present pigs. Continue this system year after year as long as you live, and your children after you, because in my long experience it has proved a decided success.

The sows, after they have raised their pigs, should be separated from their pigs by at least the 1st of September, and fitted for the market as soon as possible, and got out of the way, for there is no profit in holding for better prices. By following these rules you will find this pleasing condition on the 1st day of December of the year past: Your breeding sows are selected from this year's pigs; your barrows are by them, are by themselves ready for market; your smaller sized put by themselves to run after the stock, while the sows that produced every hog on the farm are sold, and you have your money out of them. Of course, hog cholera, mismanagement, lack of feed and inattention to breeding cannot produce this result. On my farm of today are seen ninety-one head of last spring's pigs, many of them averaging 275 pounds, with the others not as heavy, but will bring as good a price, and I will sell them next week. I have also thirty selected sows, by the same system, for next year's crop of hogs, also thirty-four lighter hogs running in stalk fields with stock. Ten per cent of the members of congress in the lower house, and several members in the senate, were born since I adopted this system, and every year it has proven a success. I am a firm believer in early pigs, lambs, colts, chicks and calves.

(19)—Brood sows should be handled with care during farrowing time. They should be in a place by themselves, and put there a week before farrowing. They should be fed on a very light diet for about a month before farrowing time, the feed consisting of two parts bran, two parts ground oats, one part corn. I also feed clover hay, beets or mangels. I feed all they will eat. Any other feed of a light nature would possibly do just as well, but I have fed the above rations for the last thirty years and have never had any cholera on the farm. I don't want to say that the above rations will keep the hogs from having the cholera, but it keeps them in a healthy condition and they are soon off to market.

(20)—The future usefulness of the brood sow properly begins at the time of her birth, and if I were to make a selection for a future brood sow I would not begin at mating time, but at birth. The sow should be kept in a growing state, fed on bone and muscle-producing food till one year old. I would select a growthy, rather loose-hided sow, a little on the coarse order, broad and deep, well upon her feet, and would mate her to a neat, stylish

hog with plenty of size and finish. After that I would keep her in a place where she could get plenty of exercise, where it would be clean, would have plenty, but not too much, to eat until a few days before farrowing time, when I should put her in a clean, comfortable pen so she could get used to her new home. One of the most important things with me is to keep the sow as tame and contented as I can, so that when I am around she will not become excited, but rather be glad that I am about. When she begins to show signs of motherhood I would remove all of the old bed and in its place put a very little fresh bedding.

If it is a very valuable litter I would keep an eye on the proceedings, and when all is over and safe go away and leave her and her babies for thirty-six hours, and if the weather is not too bad you will find her about where you left her and she will be in a contented state of mind. At first give a little lukewarm water or dishwater slop with a very little grain. Don't get in too big a hurry to get the pigs off to market or they will go before you are ready to let them go. As the pigs begin to grow, increase the sow's food gradually. Also give a slop made of shorts and bran; not too much at first, or it will cause the pigs to scour, and then they are worse off than if they had not seen slop. After a few days get them out in the sunlight, for it is one of the very best things for all young stock, and old, too, for that matter. As warm weather begins to come and things begin to grow, turn them out to grass and feed liberally, and if the premises are not infested with disease it will surprise you how soon pigs will turn to hogs.

(21)—This question is a practical and timely one for every farmer. The care and management should be the very best that we can possibly give them. Sows at farrowing time are not treated alike on every farm, nor are their litters. Every spring we hear much concerning good or bad luck with pigs. How much luck has to do with getting large, healthy litters I will not say; good care and management are largely responsible for good luck, I think. All farmers do not work under like conditions as to feed and shelter, but certain essential things are at everyone's disposal. Large, roomy sows should be selected for breeding, and as young sows are mostly used for breeding they should be taken from mothers that had good litters and that proved gentle mothers and good milkers, as these qualities are largely hereditary. Next, good boars should be chosen, and, if possible, along the same lines. The boar should not be turned in among the sows to be bred; better results will be had if each sow is brought to him and allowed to receive one service. In this way one can file the date of service of each individual if so disposed, and not have any guesswork about it at farrowing time. Sows should be kept quiet and gentle all the time and never given any chance to crowd and jam through doors or creep holes, as that is liable to result in dead pigs at farrowing time. Daily exercise is necessary, and also good dry beds to sleep in. The feed should not be too heating after the sows are bred. Corn and water will not give the best results, especially when sows are bred for early litters. I like corn and skimmilk for feed for brood sows, with an occasional feed of raw potatoes, say once or twice a week, and then allow them to roam over the pasture at will in open weather. Oats are splendid feed if we have them at this time. When the critical time draws near, two or three days before, I pen them by themselves, quietly. Now I think it becomes imperative to prevent the sow from becoming costive, as she surely will if not fed laxative food. Costiveness at this time will in turn cause feverishness and bad luck. I like to be present when the little fellows arrive, night or day. Often this is unnecessary, but we cannot tell beforehand what is going to happen that might result in loss.

I generally have a barrel handy, put in some dry litter out of the sow's bed and put the little pigs in it until they are all there. After the pigs are all dry and scrambling around lively, I take them out and let them suckle. If the sow takes to them friendly then, all right; if not, I put them back in and try again in a couple of hours. If she is not motherly then she never will be. In cold weather I put a jug of warm water wrapped in a sack in the barrel to keep the pigs from freezing. I feed the sow nothing for two or three days, only giving her water. After that time I give light food and increase the quantity gradually. The pen should be kept dry with good clean litter. In a week or ten days I turn them out for exercise if the weather permits. As soon as the pigs begin to nibble at food, a little milk and shelled corn is placed in their way where the old sow cannot reach it. They soon learn to find it and eat. They can then be weaned in from six to eight weeks, if so desired, without harm.

(22)—The brood sow to be selected should be of good length, with a broad and deep body, and with the attainment of the best type and other characteristics. We want a sow capable of producing profitably. She should not be overfat at breeding time, but should be thrifty and strong. After breeding, let the feed be gradually increased, not for sake of fat alone, but for the additional strength it gives her for the task that is to follow. To furnish the required amount of nutriment for a strong litter requires more milk than can be made from the best rations the sow is capable of eating. So liberal and judicious feeding before farrowing (as well as after) should be given to put her in the best of health and strength. Then she will have a surplus to draw upon for the support of the litter in addition to feed that she is able to daily convert into milk. Avoid the heating feeds. Give an occasional mess of meat scraps, and roots of any kind. This is the best prevention of costiveness and consequent feverishness. One of the most important factors is daily exercise; this is the key to health and bodily vigor. Another advantage is to have the sows farrow in close succession, as one can care for all the litters, giving the same system of feeding and having an even lot for market.

After farrowing, and when the danger of parturient fever is past, the sow should be regarded chiefly as a milker and treated as a dairy cow that is being fed for a record, as now the litter are fed through the dam. As soon as required the litter should be fed with supplemental food.

The hog is an animal that keeps close to Nature. As soon as the weather will permit, both dam and pigs should have the run of a grass lot, as good grass is the best and cheapest food that we can furnish them and it is especially adaptable to their needs. Last, but not least, do not neglect sunshine; it is the cheapest, most abundant, yet many times the most neglected in pig raising.

(23)—Brood sows need as much care before farrowing as after. If pigs are farrowed in April they will be ready for grass as soon as it is green.

The sows should be in a herd by themselves at least a month before farrowing. Ground feed and oats should take the place of corn, as plenty of feed should be given. Salt, pure water and coal ashes, or charcoal, should always be where they can get at them. They should be given plenty of range and dry sleeping places, free from draughts.

A few days before farrowing they should be shut in their pens in order that they may become accustomed to them. The pen should be of good size with the door opening into the alley of the hog house.

If the floor is of earth it should be leveled so that no holes will bother. Fine straw should be provided for bedding. At farrowing, troughs and feed

boxes should be removed from the pens and the sow left to herself. If there is nothing to disturb her, and she has had good care, she will succeed all right. No harm is done, however, to be on the watch in case of mismanagement. No feed should be given until the day after, when slop should be fed. After that the feed may be resumed as usual. Bedding should be removed as soon as soiled and fresh put in. If the weather is fair when the pigs are about two weeks old they may be turned out. They always find their way back into their own pen. As soon as they can get plenty of grass, corn may be fed to sows, but ground feed or oats should be the principal feed. As soon as the pigs are old enough to eat they should have a feeding place of their own, where shorts in the shape of slop should be given them.

It should be arranged so that sows will farrow at about the same time, as this prevents robbery by the older pigs.

If care is taken of the sow and her pigs, plenty of good food given, and the pens kept clean and comfortable, no one in the business need complain of ill luck. Hogs are cleanly and require less care than any other stock and are more profitable.

(24)—The best time for litters to come is in April and the fore part of May. After breeding the sow should have liberal treatment and be furnished as great a variety of feed as your resources will permit, such as slops made of bran and middlings, oats, and a small allowance of corn; let her have some clover hay to look over in winter and pasture in summer, so as to give her plenty of exercise. A few weeks before farrowing time put each sow in a separate pen with plenty of bedding so that she can get her bed ready in plenty of time for the little pigs. Long coarse straw should not be put in after the pigs are here; put plenty in before and it will be cut and ground up and make a better bed. I prefer the north, west and east sides closed, so as to keep off the cold rains and winds; but have the south side open, as sun is what the pigs want the first week or two. If they have plenty of sunshine they will get along nicely. It does not pay to disturb the sow until a day or two after farrowing if it can be avoided; then give her some pure water or thin swill, adding to her ration until in about a week you have her on full feed. Do not feed too heavy just before farrowing. After we get her on full feed we must remember to give her food that will produce an abundance of milk. Corn should not be fed at all until a few weeks after farrowing, as it produces too much heat. If the little pigs begin to get the scours, change the feed of the sow and it will sometimes check it. In about eight or ten weeks the pigs can be weaned, and as by that time they have learned to eat and drink, I always have a trough where the pigs can eat and not be disturbed by the sow. When weaning a good plan is to have a few of the smaller pigs a few days, or even a week, with the sow, so that she will gradually dry up and not at once, as the sow, if she is a good milker, may get milk fever.

(25)—We will try and give you our opinion on this subject, based on the experience of a small farmer rearing pigs farrowed in April. First we find that it is absolutely necessary to know when the pigs are due to come, and this can be easily done by setting down a description of the sow and her time of service. The sows can then be shut in the farrowing pens at least three days before time to farrow, so they will become used to their quarters. Feed oats and a light slop of a laxative nature up to farrowing time. If the sow has been quietly handled she will not be any trouble to handle at farrowing time. Avoid giving too much bedding, as too much is more often given than too little. Fenders should be placed on at least three sides of the pen, and at least eight inches from the floor. This prevents the sow from

lying against the walls, and the pigs will soon learn to run under the fender when the sow goes to lie down. Quietly watch the sow as she is farrowing. A garden rake is a good tool to use to push or pull the youngsters around to the proper place. If there happens to be a chronic squealer in the litter, remove him to some warm place until the litter is delivered, as he is almost sure to get the sow uneasy and get himself and some of the rest of the litter killed. Some will say, "Oh, that is too much trouble." Try it and see. If an hour's time watching a sow will save you a litter of pigs, how can you make more money? The pigs safely farrowed, be in no hurry to disturb the sow. Twelve hours afterwards is soon enough to feed. Feed lightly and give warm dishwater to drink, avoiding sour slops while the pigs are small. Keep the bedding dry if you have to put in new straw every day. Turn them out of the pen as soon as the weather will permit, allowing them to retain the farrowing pen to sleep in. Let them run on good pasture and provide a good pen for them to run in and eat and drink by themselves. Make a drinking fountain for them, one being easily made with a tight box with a barrel set in and float attached. I can recommend this, as I made and used one last fall and summer and it works successfully.

(26)—The little fellows when first seeing light should not be "born short." Mothers of large, growthy type in full vigor of maturity should be used. No signs of omission or commission in selection, care and feed, made on the part of the farmer, should be charged over against the litters. Enough are liable to happen later. Very early farrowing, of known, tested and matured individuals, as February and March, or quite late with gilts, as from May 10 to 20, is the best. The farmer as a rule should not have pigs come too early, unless he is well fixed and experienced. This does not mean a very fine hog house, but a very warm place that will admit all the light and sunshine possible from nine o'clock until three o'clock. Sunshine and light are as necessary as feed. Individual houses that can be located easily and that have thirty degrees of slant roof each way, have a south half roof in the form of a door that can be thrown clear back, is a very good plan. Near farrowing time the attendant needs to be as wise as a serpent and as harmless as a dove in tricking the individual about to farrow to sleep by herself in a pen or individual hog house. The constant attendant should only attempt this, and he should have sense enough to do it without fuss or worry. Hold an ear of corn to her mouth and let her follow and then place her feed in the house. Reward her every time, and finally she can be penned up permanently and will not worry, but she needs to be let out enough each day for exercise. This is lots of fuss, but if she is a good animal, and nothing else, this pays. A careful, well-tested mother will farrow and take care of her young without much attention. It is remarkable how this motherly trait of carefulness is inherited. A farmer can soon select down to good, careful mothers and save many a night's watching and bitter disappointments in litters killed by unnatural mothers. Feed should be about nothing for about three days, with light and frequent drinks of warm swill that should have an addition of meal slowly increased until the pigs are a week old, when it can be thickened and fed gradually and increased until on full feed, which will be about twelve days later. It is a good plan to keep the sow a little hungry until the pigs are well filled out and very active. The real skill begins after that period for developing the litter. As soon as the pigs are four or five weeks old, probably as good a condition to help things out in the development is for the sow to follow the cattle in the feed yard and start her pigs on droppings. Place the sow and small pigs on a swill of ground oats, strong in oil meal and enough shorts and bran to

make a variety, and this, with a nip of early blue grass and early clover leaves, will make them boom and still keep in health. Hardwood ashes and plenty of soft burnt brick (much better than stone or soft coal ashes) is best for grit. Put turpentine in the slop twice a week to avoid intestinal worms, and I think the feeding of bone meal is a benefit. I have not tried it, but think it would be good if one could get enough out of the hogs to pay for feeding it. A large, roomy pasture, with a variety of grasses, plenty of feed, shade and warm places or nooks are essential to the successful.

(27)—Swine breeders should make it a point to be on hand when every sow farrows. Attention at critical times always pays. Have plenty of bedding and it should be short and fine. Coarse, long bedding offers an excellent opportunity for the little pigs to become entangled, and in that state the old sow is liable to step or lie on them. Feed the sow for several weeks before and after farrowing time upon light, nitrogenous slop, made from skim-milk and kitchen waste, to which can be added some bran or middlings. Corn is not very good at this period, and should be fed lightly or not at all.

(28)—In the first place I would want my sow well bred, and have her mated to the best boar procurable, only letting the pocket govern it, and then get my sow in as good condition as possible. We have always had better success if the sow was fat; that is, if the fat was not entirely put on by corn. I think the nicest pigs we ever had farrowed was after the sows had been fed on corn one part and enough oil meal to make it nice and slick. The sows were fat, and when time of farrowing arrived every sow pigged easily and the little fellows were lively and their coats shone like a well-groomed horse. We always stay with the sow at farrowing time to see that the little fellows do not smother and that they get their teats. I think another point is to have the sow gentle, so as to be in the pen with her. After the sow is through cleaning and the pigs have had enough milk to satisfy them, the sow should not be disturbed for about twelve hours, unless it is to give her some water if she appears feverish. At the end of that time feed may be given, but only thin slop. We think bran is better for the first few days than shorts, as bran is more cooling. Some corn is fed along, but not very much. At the end of five or six days a little shorts may be added to the bran. The sow should not be placed on full feed for two weeks, and then care must be exercised or scours will be the result. We have tried everything we ever heard of for scours, but the best is soda dissolved in the sow's feed. Of course, the feed for the mother has to be lessened. As soon as the pigs are six weeks old they want to begin to eat for themselves, and we do not discourage them, but have a pen fixed off so that they can go and eat by themselves. I think soaked shorts and corn are the best things to get the pigs started on. As a place for a sow to farrow I would pin all my faith to an individual house. We have tried both. In the pig house it seems the other animals disturb the sow and she gets restless and is liable to get up often and thus tramp on the pigs. Afterwards when the pigs get older the other hogs will bother about the pigs when they should go out and take exercise. In the single houses all these obstacles are overcome; the sow is alone and quiet, and after farrowing she will take the pigs out and give them the exercise that is so necessary for thrifty pigs. We all have a standard to go by, but we have never got to raising our pigs up to the standard, and have never been able to raise a pig that will fill the score card perfectly.

(29)—Brood sows should be in good flesh and health at farrowing time so that the pigs will have something besides what is fed the sow to draw upon. The idea that a brood sow must be nearly starved to farrow pigs is,

I think, a wrong idea. They do not want to be kept on corn and water diet, either. Keep your sows in good, healthy condition; feed them on slop feed mostly, either of bran and shorts or of ground oats, with a little corn; feed enough to keep your sows gaining in flesh until farrowing time. A few days before farrowing put each sow in a pen by herself. If for March pigs, the building ought to be supplied with means for artificial heat, as March weather is a very uncertain quantity. Give the sows a dry nest of straw and change it often enough to keep it dry, as nothing is worse for a little



A TYPICAL YORKSHIRE SOW.

pig than a wet nest. Feed the sow a little sloppy feed for two or three days after farrowing. The sow will give all the milk the pigs will take for two or three days without much feeding. After the pigs get a little age, feed about all the sow will eat, but if your pigs commence to scour, slack off on your feed until the pigs stop scouring, as it is only overfeeding, causing indigestion, that makes them scour. Remove the cause and you will effect the cure. When the pigs get old enough to eat have a place fixed for them so that they can eat by themselves. When they get to eating good, feed them all they will eat and digest, till they are ready for market. Pigs ought not to be weaned before they are two and one-half to three months old, and they ought to have the range of a pasture, with a feeding floor to eat upon.

(30)—When I first commenced to raise hogs and give them the care they should have I overhauled every old agricultural paper I could find to get pointers. With the experience told me from others I then began the hog business. I think where sows are properly handled before farrowing it is half the success in raising your litter.

As soon as my sows show that they are safe in pig I always see that they have good, dry nests, and never let more than four or five sleep together, so they never pile up, although I let them run together during the day. As soon as they go to their nests I close up their pens, and if there are more than five in a pen I make one get out, and find a nest in a less crowded pen.

I see that they have plenty of fresh water, and give them a good allowance of corn, as I don't believe it pays to keep the sow thin, neither do I want her fat, and I also feed her plenty of oats, also keep salt and ashes by them. I never give them any medicine of any kind.

In three years that I have practiced this I have never had to take a pig nor have I lost a sow while farrowing, and in that time had only one pig born dead. At farrowing time I see that they have good farm quarters, where they will not be disturbed, and dry bedding—generally wild hay, as I do not like straw. When I have the sow cared for as stated, and the weather is fairly good, I never give myself much care about her. If the weather be chilly or damp, I generally look after the sow and her litter very closely to see that none of them get out of the nest and get chilled. The first day after farrowing I do not disturb the sow only to water. The next I water, and if the sow seems to desire food I give her feed from that time on, being sure not to increase her food so as to cause too liberal a flow of milk for the first two weeks, for in case you do you are liable to scour the pigs.

Change the bedding often, for if you do not it is likely to cause sickness, cause the pigs to get sore tails, and to such an extent sometimes that the tails will come entirely off. When they do get sore tails, grease them with lard and carbolic acid.

As soon as the sow begins to act restless I let her have the run of the pasture for a short time (keeping in the pigs the first week), and as soon as she has exercised and fed for a short time I turn her in her pen again.

As soon as the pigs get large enough I turn them in the pasture with their dams.

From that time on I do not give them much care except watering and feeding, and seeing that their nests are kept clean. As soon as the pigs will eat I fix a pen where they can eat and not be bothered by the dam. There I feed them a slop composed of ground corn, oats, shorts and oil meal. About a pint of oil meal to a bucket of slop is all I use. In this way the pig is soon converted into a full-grown hog.

(31)—For many years I had splendid luck with hogs; the cholera never bothered and I never knew the reason why. Occasionally a hog would die, and I lost some pigs, but I never gave a particle of medicine to a hog or hen. They never seem to be sick except when they have made up their minds to die. The only mistake I made was in giving too much corn and too little mill feed. It is far better to sell corn and buy shorts and bran than to give all corn. I always had a large yard and a warm, dry place for all the hogs to go when they liked. I keep my brood sows with the other hogs until the last two weeks before farrowing, then each sow is placed in a pen by herself and let alone. At farrowing time I never go near them. Never lost a sow at such a time and but very few pigs. My sows are kept tame as kittens. I feed light feed for a few days after the pigs come, then put them

into the yard with the other hogs. I like everything on the farm, and they like me. I never putter with anything or dose with medicine. Comfortable care and the right kind of food, and plenty of it, are the main things with all farm animals.

(32)—There are many important parts to consider in this subject. The most important is the selection of a good male, and that is half the battle. The most trouble I have experienced is in getting them too fine-boned, especially so in the full bloods. A sow should be at least a year old at farrowing time. I believe in marking each sow at breeding time and putting down the date. I have done this for a number of years and it would be hard for me to get along without. I have seen a good many farmers make this mistake of letting the boar run with the sows all the time. He ought not to serve more than twice a day for best results. If you have the date you have a chance to put her in a separate place a day or two beforehand, and thus avoid the trouble of having the sow in some fence corner to take care of a quarter of a mile away from the house, or have her caught in the rain and have all her pigs drowned. In regard to care and feeding before farrowing, keep them in a thrifty condition, but not too fat. Do not feed them too much corn, but give them a large range. Be careful to have no place in the fence or stable where they go through, as this, in my judgment, causes many dead pigs. After farrowing is the most particular time for feeding. Their food should consist mainly of bran and shorts for the first few days, and not much of that, as it is very injurious to the sow and pigs. Do not feed corn, as that causes heat and fever. As soon as the pigs are old enough to eat fix a separate place where they can crawl in and get some slop, feed and milk, and they will soon learn to know their new place. Pigs ought to be weaned when about twelve weeks old. It is a good thing if you can give them the run of the stubble field after harvest, with some clover sown with the oats in the spring.

(33)—Brood sows should be watched carefully during the early stages of gestation to see that they have plenty of exercise in the sunlight, and that their bowels are in good condition. They should be fed well (but not so as to fatten) on bulky food of a protein nature. Raw meat, if handy, is good, with a few roots. If she is costive just before farrowing, give her feed abounding in fat, so as to make her droppings of a light color. She should have a pen by herself so that she will be quiet, and put her in a week before she is to farrow, so that she will get used to it. In no case should she be on a floor where the air circulates underneath it. If she farrows in the winter or early in the spring, she should have some fresh earth every day until she can get at it herself. The floor should be level, and the bedding should be but little, so that she cannot make it uneven. If in a small pen there should be fenders nailed around the pen eight inches from the ground or floor, and eight inches wide, so that the little fellows can have a place back of their mother, where they can escape if she is careless or tends to overlay them. For early farrowing I build a small movable pen six by seven by two feet high on the north and four feet on the south side, with a door eighteen inches wide and two and a half feet high on the southeast corner. The upper half of the south side is made so as to open and turn down, so as to make a place to put in feed and open up on pleasant days to let the sun in on the pigs. This is made by making runners of two by eight and eight feet long, and all the rest, except the posts, of shiplap one by four by fourteen feet long, thus having little waste. The roof runs horizontally as well as the sides and ends. The roof is eight feet long and overlapping so as to make it like a shingle roof. A man can build and paint

one of these in a day and it will not cost over \$5. You see when the doors are closed the sow keeps the pen warm in any ordinary weather. She can be fed on the outside and a spring on the door will keep it closed. A separate floor can be put in if desired. This pen can be drawn about by a horse, or four men can take it up and move it. Turn this pen around so that the door on the south side will be to the north, and you will have a fine pen to use in hot weather, leaving this door open. It is a nice, cool place, and during the hot days is a fine shade for the pig lot. The day on which the sow farrows she will only need some tepid water, and after the first week add corn and other grain to the slop, according to the wants of the pigs, which will keep the sow in a fair condition. If she has more than ten take all the poorest away from her and give them to another sow. To this end several sows should farrow about the same time. When she farrows be on hand to see that each pig has his teat. When they have pre-empted their ground they want to keep it, so you often see a fight, but see that there is only one claim made and then the old sow will not be disturbed. When once arranged they will always seek the same place. Plenty of sunlight and exercise are necessary; otherwise the pigs will have the thumps.

(34)—The care of brood sows and their litter is a timely subject and of very much importance. I like to have a sow in good condition and in good flesh at farrowing time. I have never had any bad results from having my sows fat. As a matter of fact their pigs will not be so large at first, but mark their outcome! A good many breeders advocate closing a sow up in a pen two or three weeks before her farrow to get her used to the place. I think this all wrong, as a sow needs plenty of exercise, and this she cannot get in a small inclosure. Every successful breeder of hogs should keep the date of farrow for each sow. I think two or three days before farrowing is plenty of time to get them accustomed to their new quarters and change of location. Then I think she needs a little extra attention. Her feed should be of a sloppy nature, such as ground corn and oats, a little oil meal with a feed of dry oats occasionally, and some corn. It is best to feed sparingly a few days after farrowing. After the pigs are a week or ten days old it is important that they should have exercise. When they are two or three weeks old they should have a trough separate from the sows where sweet milk can be placed and they will soon learn to drink. When they are from four to six weeks old you can commence feeding a little shelled corn with a little oil meal and bran shorts added to their milk. If you are raising pigs of any of the improved breeds to sell for breeding purposes, it is essential that you feed liberally and a variety of feed in order to have large, growthy pigs for breeding purposes.

If raising pigs to have on the market I would have them come in April or the first of May. I would aim to get them on the market before cold weather sets in. It is a great mistake to carry pigs through the winter to feed for heavy weight. The first six months of a pig's life are the best for producing weight.

(35)—The subject, on the whole, is rather restricted, as the management should commence before farrowing time; but if properly cared for previous to farrowing it simplifies matters at such times. We will suppose that the management has been all that is desired up to this time, and take up the subject at farrowing time. Have the brood sow in good and comfortable quarters that can be kept dry and clean. Keep her quiet and gentle, and get her used to the attendant's presence. In such cases the attendant is able to render assistance should it be necessary. In cold weather it will

be necessary to give the little pigs a good rubbing to keep them dry and warm, as they chill very easily at this time. Now keep the sow quiet and sheltered from all the changes in climate until she has regained her normal health. The pigs, as they gain strength, should take plenty of exercise, and if they will not do so of their own accord, the attendant should compel them to take the needed exercise. Give the sow only cooling drinks and a very small amount of feed until the pigs are able to take all the milk, then increase very gradually until you have her on full feed, which should be of a milk producing and not of a heating character. Also give a variety to keep the dam in the best of health. As soon as the pigs will eat make arrangements to give them a separate lot and trough where the older hogs cannot disturb them, and then give them all they will clean up and no more. At the age of eight or ten weeks you can wean them from the sow and they will keep on growing as if nothing had happened, if you give them plenty of



THREE MULE FOOT BROOD SOWS, FIRST PRIZE WINNERS.

feed of the right kind. Each feeder should arrange the feed according to his own individual resources, giving the best growth at the least expense.

Now as to the management of the sow at weaning time. After taking away the litter let them remain away until her udder is filled quite full, then let the pigs draw out the milk, and there will be no more danger to the sow, if you have reduced her feed to correspond. The sow should be put in a pasture with just enough supplemental food to keep her in a good thriving condition, until a new littler is about to arrive. The sow should not be fed with food that will develop the milk secretion unduly. I have found from experience that an old sow is apt to have so much milk that there is danger of milk fever at the next farrowing. A sow should be kept as long as she will raise good litters, as they are generally stronger than those from immature stock.

(36)—Brood sows should be accustomed to their pens in which they are to farrow, and their beds should be supplied with plenty of fine, dry bedding.

When I see them making preparations for farrowing I shut them in separate pens, sometimes shut them up a few days earlier, but believe it is

best to let them have their usual range as long as possible, the exercise being very beneficial. I watch them very closely at farrowing time to see that none of the little fellows are overlain, but am careful not to excite the sows.

When the sow gets up for her meal I give her a light feed of corn and oats, with pure water to drink, increasing the feed along and give slop made of shorts and ground oats once a day, adding the kitchen slop and skim milk. I feed them regularly and am careful not to overfeed, or give sour slop, as it will cause scours among the pigs. Keep salt and ashes within their reach at all times. Soon as grass starts, turn them out. When the little fellows begin to eat fix a place for them to eat by themselves.

With good clover or blue grass pasture (I prefer clover), and a little corn and slop they will do their best.

(37)—Brood sows and their litters and their management is a subject that might engage the thought of all who are engaged in agriculture in the great and incomparable corn belt of the United States. They might be appropriately termed the "mortgage lifters" of our fertile acres, and therefore should receive the management and care they so richly deserve.

The management of the brood sow should begin the minute she is weaned from her dam, by selecting what in your estimation will make an ideal breeder, and giving the best of care. We believe in giving the young gilts the range of the farm if possible and giving them a liberal amount of bone and muscle forming food. Under no circumstances confine the young gilt to a small and muddy pen and expect to get the best results later on, for you will be greatly disappointed at farrowing time in the number and size of the litter. Some do not need to be handled like a house plant at farrowing time, if they have been properly cared for during their development and have been mated to a vigorous and healthy male.

The first few days after the sow has farrowed she should be kept as quiet as possible, and fed no heat producing food, but a few oats and plenty of pure water. But when the pigs are a week old you can begin to feed more liberally of ground feed and slops composed of equal parts of corn meal, ground oats, and shorts with a liberal supply of milk. Increase the feed as the pigs get older, never letting them get hungry. When the pigs are four or five weeks old they should have a separate trough where they may be fed a little shelled corn soaked in milk, which they will soon learn to devour with a relish. If there is no tame pasture we would advocate sowing of rye or oats for a pasture and we would also plant a field of sweet corn adjoining the pasture to commence feeding on by the first of August before field corn is ready to cut up. We do not advocate shutting the pigs up and weaning them, but let the sow do that herself.

Some farmers—Must it be said?—think that anything in the shape of a hog is good enough to breed from and all that is necessary to get the best results is to have a liberal supply of the "corn crib" cross. They never made a greater mistake in their lives. By all means select good stock and keep trying to improve it.

(38)—It makes some difference at what time of year the sow farrows as to what kind of pen is best. I use pens open to the south so that the sun can shine in. There is nothing a pig enjoys much better than a sun bath. I try to have my sows farrow the last days of April or the first days of May. Shut each sow in a pen by herself a few days before the litter is expected. I do not like to shut them up very long, as the longer they can run on the pasture the better. After the sow has farrowed do not feed her anything for twelve hours, then very sparingly—an ear of corn or a handful or two of oats at first, but keep water by her all the time and gradually increase

the feed, giving as much of a variety as possible—some corn and oats and small potatoes if I have them, and some skim milk that is not sour. I think more pigs die while they are young because the sow is fed too much than because they are not fed enough. When the pigs are a week or ten days old the sow should be let out of the pen, being careful not to let her out when the grass is wet, the first time, for running through wet grass is not conducive to the health of a young pig. I try to get each sow into her own pen at night for a few nights. When the pigs are four or five weeks old they will usually learn to drink skim milk if it is placed where they can get it handily, and the older hogs cannot. After they have learned to drink they may be fed a little soaked corn in connection with the milk. I think twenty four hours is long enough to soak the corn. Shorts may also be fed with good results if fed before they get sour. The barrel should be cleaned out at every feeding time. When the pigs are ten or twelve weeks old they should be weaned. The sows should be shut up. Let the pigs have the pasture and feed them liberally enough to keep them growing for it never pays to let the pigs get stunted.





GRAND CHAMPION MULE FOOT SOW AND THREE OF HER GET.

CHAPTER VI

Castration of Pigs

Whether or not you are producing hogs for market, there will always be some to castrate. All the males in a litter will not be good enough for selling for breeding purposes and these animals should be castrated. If the hogs are all raised for market, the males should all be castrated. It is necessary that castration be done before the hogs get too old. It is claimed that any time before six months is the time limit for castrating pigs, but practical men say that it is best to castrate the males before weaning time. By so doing the pigs stand the operation better and do not suffer a set-back. When the pigs are about six weeks of age is about as good a time to castrate as any.

If you are raising pure bred hogs, all the scrubs should be castrated. There is decidedly more money in castrating scrub pure bred animals than selling them as cheap boars. However, if there are some animals in the litter about which you are in doubt as to their outcome, it is well to leave them entire for say four or five months before castrating in order to determine just how they are going to develop. Usually about the time a pig is four months old one can tell about how he is going to develop.

Marking.

It is often very desirable and advisable that it be possible to distinguish the pigs belonging to certain litters or to each litter raised. One of the best methods consists in making notches in the ears and having each notch represent a definite number.

By means of the following system as many as a hundred litters may be marked with not to exceed four notches in the ears of any one pig. It is as follows: On the left ear let a notch on the lower edge near the head represent 1; on the same edge near the tip, 10; on the upper edge of the same ear near the head, 2; on the same edge near the tip, 20. On the right ear on the lower edge near the head let a notch represent 3; on the same edge near the tip, 30; on the upper edge near the head, 5; and on the same edge near the tip, 50. This system is easily remembered. Note that all you have to do is to get in mind that 1 is on the left ear near the head, 2 right above it on the upper edge, and that on the right ear 3 appears on the lower edge near the head, and 5 above it on the upper edge. Near the tips the numbers are just ten times as large as near the head, on both ears and both edges of each ear.

For this it follows that the pigs of litter No. 1 should each have a notch on the lower edge of the left ear near the head; those of litter No. 2, a notch on the upper edge of the same ear near the head; those of litter No. 3, a notch on the lower edge of the right ear near the head; those of litter No. 4, a notch on the lower edges near the head of both left and right ears. In this manner any combination of these numbers may be made up to 110, with never more than four notches and in the great majority of cases only two or

three notches will be required for each pig. If the pigs are marked a day or two after birth or while they are young, the notches may be made with a good sized leather punch by punching out half moons in the edges. If the notches are cut with a knife, especially so if done while the pigs are young, the notches must be made very small, otherwise the ears will be badly disfigured when the pigs grow to maturity.

If you are raising pure-bred, it is necessary that you have some system of marking. Mark them while they are still suckling the dam. If they are not marked you will soon find that they get mixed up very easily, so that it is necessary to mark them while they are still young enough to be distinguished one from the other.

There are two general systems used by practical men in marking hogs. One is the common link or band tag or button in the ear, and the other is some system of notching. Tatooing is used by some men, but not to any great extent. Some form of notch system is an excellent one, and can be worked out by the individual men to suit their needs.

One can also give a bunch of pigs a litter number and mark them individually later on, and from this system you will find that when marking times comes you will find some pigs that are not wanted and do not need marking, and thereby save time and work of marking. Make the marks deep enough and plain.

Some breeders object to the notching system of marking because the ears sometimes become torn or slit from the mark. It is also usually necessary to check up the herd every six or eight months when the notch system is used to see that the marking is still true. The tips of the ears where notched sometimes become torn in fighting and sometimes freeze off in severe weather.

Others do not like to notch the ears on account of the ear being marred in its looks to some extent, especially so in marking show hogs.

Exercise care in marking pigs in order that the system will be accurate, for the marker is often inclined to get a notch in the ear regardless of position when the pig gets to squirming and jumping around.

Weaning.

The time and manner of weaning the pigs will depend upon the system of management followed. If only one litter is raised per year per sow, the pigs may be allowed to suckle the dam until she weans them herself, but on the other hand where two litters are raised per sow per year, it is best to wean the pigs at eight weeks of age. If the pigs learn to eat as they should at the end of eight weeks they can be weaned at that age without any trouble at all. It makes no difference which system is followed, the pigs should be weaned by the time they are twelve weeks of age.

When weaning some advise taking all the pigs away from the sow at once, while others advise leaving two or three small ones and the runt to take the milk for a few days, and then by cutting down on the feed supply the sow will quit giving so much milk and there is no danger of spoiled or caked udder with the sow. There are disadvantages of leaving the small pigs with the sow for the reason that the pigs usually have their own particular teat and when the large ones are taken away the small ones will not take all of the milk and will leave lots of it, and if they do suckle all of the milk they get too much, and old milk causes scours. So some breeders claim that it is best to take all of the pigs away at one time, removing the sow from where she has been running and leaving the pigs where they have

been used to eating for the last few days at least. At the same time cut down on the sow's feed and ordinarily there will be little or no trouble with spoiled or caked udder. It is also advisable to change the sow's feed and not give her feeds which have a tendency toward milk production. Another disadvantage to be reckoned with in leaving some of the pigs with the sow at weaning time is that all the sows cannot be bred at or near the same time, for the sow comes in heat about three days after the pigs are weaned and it is advisable to have them all bred as near the same date as possible.

The following are quotations from practical men on the weaning of pigs:

(1)—When and how to wean pigs is an important part of hog raising, and any mistake made in the process will tell on the future of the pigs. When we wean the pigs, we take them away in the morning for all day, returning them to the sow for the night. We take them away again for a longer time, and at the end of four days the sow has dried up without caking her udders.

We feed mainly on protein foods, middlings, a little tankage, some blood meal and a little corn, giving them what they will clean up at each feed, letting them run on pasture in the meantime, and keeping their appetites keen.

When we are crowding pigs for the show ring, we feed three times a day, but do not feed as much at one time as when they are fed twice daily.

(2)—The weaning of a litter of pigs is not a difficult task if they have been fed correctly from the beginning. If feeds have been provided that can be eaten and digested readily by the small pigs, they can be removed from the mother after two months without any noticeable inconvenience. This is a critical time in the life of the pig, and an effort should be made to make the change of rations gradually. Any sudden departure from the normal ration will be noticed, especially by suckling pigs, and they will be stunted accordingly. Aim to keep them growing from birth until maturity without a break in their daily gains.

If warm skim-milk can be provided, the pigs will soon learn to go to the trough with the mother and drink with her. The skim-milk should be supplemented with wheat middlings, ground corn, oats, rye, or tankage. All of these feeds are good and local conditions will determine which should be used. Provide green pasture at all times for the brood sow. Coarse, bulky feeds should not be given to the sow and her litter at this stage. Most of the feed should be in a concentrated form and easily digestible.

In carrying out the feeding directions, a creep or separate enclosure should be provided for the pigs in one corner of the lot or pasture to which the sow can not have access. Leave a space below the bottom board through which the pigs may go and have an equal chance with each other. By providing this at the start, the pigs learn to eat early in life, and they may be weaned when eight weeks old, and the sow bred again for a second litter of pigs. If this method is used, the change of rations and separation from the mother will scarcely be noticed by the young pigs if they have been fed properly up to this time. Whatever the method of management make the change of rations gradually.

The pigs intended primarily for breeding purposes may be left with the mother for a longer time than stated above, provided they do not suckle too heavily and cause a great drain upon her. Some breeders do not wean the pigs until they are three or more months old. In the production of breeding animals, the aim should be to get plenty of bone and muscle, the

mother's milk being especially conducive to rapid development of these pigs.

(3)—At seven to nine weeks of age the pigs should be weaned. This can be accomplished to the best advantage to the pigs and their dam by weaning first the stronger pigs of the litter and leaving the weaker ones with the mother. This will make the entire litter more even in size and at the same time be a more gradual way of drying off the sow, and thus prevent damaged udders. In weaning the pigs it is much better to have the sow and pigs in the pasture or feed lot where it is desired to have the pigs run, at least a week before the time of weaning, and then wean the sow away from the pigs and not the pigs away from the sow. They will worry less. Remove the sow and two or three of her smaller pigs to a lot out of sight and hearing of the pigs being weaned. The time of weaning is best at seven to nine weeks, because the pigs will be eating very freely from their trough in the creep and the flow of milk from the sow will have been quite materially diminished.

After weaning, the methods of feeding and caring for the growing pig will depend upon the purpose for which he is to be used, but up to this time the method should be essentially the same in all cases. The method of handling the pig now will depend upon whether or not he is to be developed for breeding purposes or for market, and if for market, whether or not by a long or a short feeding period. However, after weaning, the brood sow is through with the litter, and the intention of this treatise is to carry the subject of care and management only up to and including weaning.

Length of Time Sow Should Be Kept In Herd.

Just as long as the sow proves to be the kind of sow she should be, the longer you keep her the better it is for you and the herd. The old tried sow which has proven herself worthy is the one to keep, rather than having the breeding herd made up of young sows. As the sow grows older, if she is a good one, she can usually be relied upon to have more pigs and take better care of them. If age mars the sow's good looks, and she gets old and thin and hard looking, do not reject her for that reason for a neater looking gilt, but keep her in the herd, if she is a good one. As the sow advances in age the size and weight of the litters increase. However, do not keep a sow that raises a good litter one year and does not raise a good one the next year. Watch the important points to be considered in a sow and if she lives up to these you can depend upon her.



CHAPTER VII

The Care and Management of the Brood Sow During the Winter Months

By Breeders.

The following material has been gathered from practical men and breeders of swine. This material was obtained through correspondence with different breeders of the corn belt asking them to furnish information telling of the system or systems they followed in caring for the brood sow during the winter. As these men tell of their management in their own words it is of great practical value to the men who are already in the business or are contemplating embarking in the same. Everything other than that which pertains to the subject has been omitted and the material will be given here in the form of a direct quotation.

(1)—The brood sow, after her pigs have been weaned, should not be fed too heavily, but simply kept in a good thrifty condition. During the fall and fore part of the winter, she should be allowed to run on rye, wheat, or some other good pasture, and fed a very little grain. Her appetite naturally craves something green as she recuperates after the strain that is necessarily placed upon her in raising a litter of pigs. Too much grain should not be fed in the winter, as the bowels will have a tendency to become constipated—a thing that should be avoided during gestation. In the absence of pasture during the winter months, substitute bran and mill-feed, mixed up in a good slop, seasoning it with enough salt to be palatable. It is a good idea to shell what corn you do feed them, boil it and mix it with your slop. After breeding your sows in December, if April pigs are desired, which is a good time to have them farrowed in this latitude, she should be fed more corn than slop for best results. The brood sow must not be starved during pregnancy if you wish to have good, thrifty and healthy offspring. It is always desirable to have the young, when first farrowed, as healthy and strong as possible, and then there is but little difficulty in raising a large per cent of the litter. Regular feeding and not allowing the sow to become too hungry at any time, is also desirable. Good bedding and plenty of it should be provided, changing the same frequently so as not to allow it to become damp from any cause. Avoid any cold draft in the sleeping apartment during the severe cold weather. Hogs should be kept in such comfortable quarters during cold weather that it will be unnecessary for them to huddle too closely together in order to be comfortable. The brood sows should have all the water they desire, but avoid giving it to them too cold.

(2)—The care of the brood sow during the winter months is somewhat identical with the care of the brood sow and her litter. If young sows are selected for breeding, the care of them should differ from that given aged brood sows. The young animal is taxed doubly; first in making her own growth, and second, furnishing nourishment for the growing litter after

she becomes pregnant. Therefore the young brood sow will require more concentrated growth-making food to develop herself and the litter she carries, than an old sow will need. The old sow could get along better on a more bulky ration such as nice clover hay with a little grain. After the sows are selected and bred for spring litters, it is best to put them in separate quarters, which should be warm, dry, and large enough to afford them needed exercise.

(3)—We are well aware that, by a majority of farmers and stockmen, the brood sow does not receive the care and management she so richly deserves. She is generally left to shift for herself after she has weaned a litter of pigs late in the summer and she is made to "grass it" through until the next farrowing time. Of course we do not object to a liberal supply of grass, but we want to supplement it with something else that will build up the run-down condition that she is in at the present time, and prepare her for future use as a breeder. She should not be fed too much corn or she will become too fat, but should be fed liberally on oats and barley as they have a tendency to build up the worn out tissues that have been exhausted by nursing the previous litter. Roots are very good to keep the bowels open, but are not of much value as a flesh forming food. Some oil meal is also very good and will make the coat look glossy and sleek, and will be relished in a little slop. The sow should have good, comfortable, dry quarters to sleep in. It is not necessary that they should be absolutely frost proof, or anything near it, as, where there are several nesting together, they will generate heat to keep them warm if they are dry and have something for a wind break. On nice, sunshiny days during the winter months, she should be let out and have plenty of exercise, which is indispensable to her health and well being. It is not very good policy to let the young gilt run with mature sows, as the older ones will fight them and get most of the feed, but they should be kept in separate pens where they can receive the proper attention. Most of the diseases of the swine family can be traced to improper food and lack of exercise during the winter months; and the loss of the pigs during the spring months can be attributed to an exclusive corn diet during pregnancy. We believe that if a majority of the farmers would not breed their sows until the middle or last of December, for spring litters, they would obtain better results, as by the time they are due to farrow, the weather has become warmer, and grass has begun to start so that the sow can obtain a little green feed, which is very desirable in connection with swine husbandry.

(4)—The first thing to be considered in the care and management of a brood sow, is good feed and care. Everyone knows that good feed will work wonders for a hog. Equally great is good care in order to obtain good results from the feed. She should have a good, warm, comfortable place in which to sleep where the pen will not drift full of snow during a storm. One does not need to have a modern hog house to have this; of course, if this can be had so much the better. I admire a good hog house as much as any out building found on the farm, though we are not all situated so we can have them, but we can at least fix what we have, so it will be a warm and comfortable place for the brood sows to sleep in. Boarding up on the inside and leaving a place open of from four to six inches wide, then filling with straw, taking care to pack it in good, will make it as warm as a modern hog house. The roof should be fixed so that it will turn water. If a straw roof, and you have not the necessary hay or straw to spare to make a good covering, as good a covering as I have ever found is to go in the field where standing corn has been husked, cutting the stalks and binding in bundles.

Cut enough to make a good covering, which is certainly inexpensive and will make a covering that will turn water all right. A farmer who allows his brood sows to "rustle" for themselves all winter, sleeping perhaps on the "shady side of a barbed wire fence," cannot expect as good results as his neighbor who has his hogs well housed. In conclusion, let me say take good care of the brood sow by all means, during the winter months, and she will give you a snug bank account that will go a long way toward paying off the indebtedness on the farm.

(5)—The care and management of the brood sow during the winter months is the most important chapter in hogology. The spring following a good crop of corn has always been a bad time for early pigs, according to my recollection. If the sows are provided with comfortable sleeping quarters, as they certainly should be, they will not take any exercise in cold weather unless they have to do it in search of food; and exercise is quite as essential as proper rations during gestation, in order to produce litters of strong vigorous pigs, which will rustle from the start, and are bound to live if they get half a chance. After service, keep the sows from all other stock. Compel them to take exercise by having the feeding place some distance from the sleeping place, ten rods at least, and farther would be better. Have a broom handy, and sweep the floor each morning, then scatter a quart of oats for each sow. This will keep them on their feet a good while, and both the exercise and the oats are good for them. At noon give them a slop of shorts and water, about the consistency of thick cream, and at night four ears of corn apiece, with all the water they will drink. They must have a dry place in which to sleep, and should be kept in good flesh, but not fat. A week before the pigs are due provide a frost-proof pen for each of the sows, and if you don't succeed in raising good litters, either change the breed, introduce new blood into your herd, or go out of the business.

(6)—Since I have been asked to write on this important subject I will confine myself to our own experience and give our method of wintering brood sows. In the fall we look over our old sows, and those which have proved to be good brooders are retained, together with a few well built gilts of strong constitution. These we breed to a good, pure bred male, about the 10th of December. We feed during the winter months one part corn and two parts oats, ground and mixed with water, to make a thick slop. Many hog raisers make the mistake of feeding their sows a full corn ration, and then wonder why "luck is always against them in raising pigs." The reason is simply that corn is a fat-producing food and the sow getting fat also gets lazy and fails to take the needed exercise, thus disappointing her owner at farrowing time, raising two or three sickly pigs, and sometimes turning cannibal and eating them all.

It is very important that sows should have good shelter; if not they will pile up on cold nights, the effects of which will often prove fatal. Our hogs have the run of a large yard, which affords them plenty of exercise, and a warm, well-bedded place to sleep. We feed as large a variety of foods as possible, such as roots, tubers and cut clover, until about a week before farrowing, when each sow is placed in a warm, well-lighted pen by herself, and the feed is changed to thin slop of bran and water, with a little oil meal. We have had very good success in following this method, our young sows raising seven pigs on an average.

(7)—The care and management of a brood sow we take to mean the raising of a successful spring litter, and to do this the care of the sow should begin before she is mated. I like to have a sow in pretty thin condition, but vigorous. So thin that I am a little ashamed of her when my

friends come around. About the best way to get her just right is to let her raise a fall litter. However, I can't say I am very much in favor of fall litters, at least not a great many. Then after she is successfully mated I begin to feed her up on good losing feed of bran and shorts made in slop every other day, and corn and water the balance of the time. I also give all the alfalfa they will eat. Feeding hay to hogs may be new to some of you, but it is the stuff for hogs in winter time. I have found this out more by observation than experience. I like to have the sow in good condition, bordering on fatness, by the time she is about to farrow. When a sow has been thus fed on such feed, one will never have any use for pig forceps. At least that has been my experience in raising from one to two hundred and fifty pigs each year for the past sixteen years, except in the years when cholera laid me low.

(8)—Do not think every female sow is a brood sow. To get a good brood sow commence on her grandmother. Never keep a sow that farrows less than eight pigs at a litter and two litters a year regularly, or she will not be profitable. After getting her I would have her raise a litter in April and one in October. In this locality this can be done if she is properly attended to, and it will minimize the cost of keeping her. I would wean her fall litter of pigs at eight or nine weeks old. Place all old or large sows in a pen by themselves, keeping the young sows separate. Give them a good shed, be it of straw, corn fodder or whatever material you can best get. Have no cracks which will allow draughts, but leave an opening on the south side about two and a half feet high. Keep plenty of good, dry straw bedding, and do not let the bedding become worn out so that the sows will squeal because of the cold and cause them to pile up, thus causing injury to the pigs if not to the sows. Give all the fresh water and slop they will drink every day. I would have my feeding place about one hundred yards from the shed, since this will give them plenty of exercise, which is very essential to good, strong pigs. For April pigs I have the sows served as soon after January as possible. I would feed not to exceed six ears of corn per day for each sow. Once or twice a week give a few oats, in the sheaf preferred. If clover or alfalfa is to be had, give them a little each week. Do not feed heavier because they squeal. Brood sows should never be fat, as it weakens the pigs. This is my plan for caring for the brood sows, and I have been very successful, securing from eight to twelve pigs at their first litter and regularly twice a year afterward. Brood sows do not need fancy sheds, or rich mill or cooked feeds before farrowing time. Keep a record of when your sows are served and then confine them in separate pens two or three days before farrowing.

(9)—Where many brood sows are kept during the winter months it is quite a task to keep them as they should be, for it is not best that many should be kept together, as if allowed to sleep together during cold weather they are likely to pile up and injure each other. The best way is to keep only a few in a lot, and have the sleeping apartment as far as convenient from where they are fed and slopped, so as to cause them to take as much exercise as possible. When not too many are kept it is a good plan to allow them the range of the farm and to follow the cows to the stalk fields, and feed a variety of feeds. I like to feed oats once a day in the morning, and slop and some corn in the evening. They should be kept in good order but not allowed to get too fat. A good, dry shed with dirt for the floor is best. If it should get dusty, rake it out and dampen it, or put in some clean slough hay or straw, but don't use dusty hay or oats straw.

(10)—In selecting brood sows those which are long and roomy should be chosen, as they are generally quite prolific. We should expect as many pigs from three old sows as from six young sows. There should be some good stock in sows. The male should be full-blooded stock of some kind, and we think pigs should not come before May, an account of grass, and if there are other hogs around, sows should be shut up by themselves a few days before farrowing time. We have found it a good practice to feed the sow oats, once or twice a day, a week or more before they have pigs, and we think a person ought to keep an old sow three or four years if she proves to be a good brood sow, for the reason that an old sow usually has eight or ten pigs, while a young sow, no matter how nice she may look, often has but four or five pigs. We believe it a good plan to always have some old sows and some young sows. We think a hog shed ought to be built open to the south, with a floor in it. Some recommend a dirt floor, but we always had trouble with a dirt floor on account of its getting muddy.

(11)—Give common sense free rein. Seek to make the brood sow strong rather than fat. This is not a hog country. Dressed hogs sell for seven cents a pound, but as new corn is worth seventy cents a bushel there is no great margin for profit. I need from six to twelve sows each year, and usually let the slaughter man fatten the pigs on halves. We are not troubled much with cholera here. It has been introduced, but soon died out. Cholera and seventy seldom go together, though corn surely does not cause cholera.

When breeding a good many sows I used to make them slick up the yards and feed lots after their brothers that were getting ready for Chicago, and they would get enough from what was wasted to keep them by letting them have a little bran, the house slop, surplus milk, etc. They should not be used to follow fattening cattle. Keep them tame and gentle and used to your voice and touch. Get them used to their private apartments before farrowing time. Feed cooling, laxative food, rather than too much corn, and ordinarily there will be plenty of healthy pigs. Not always, however, for they will sometimes take sickness in spite of all you can do.

(12)—From observation and experience I have come to the conclusion that more depends on the care of the brood sow during the winter months, with regard to the spring litter of pigs, than the majority of farmers have any idea of. I think the two greatest mistakes made are feeding too much corn and allowing too many to sleep together. I do not object to a sow being quite liberally fed on corn before she is bred. Then begin feeding oats, say one feed every other day and later on one feed every day. I think a good way is to feed oats in the morning, a little skim milk at noon or slop of some kind, and corn at night. A few raw potatoes are beneficial and sows are usually very fond of them. In winter the sleeping places should be arranged so that not more than five or six will sleep in one place. The reason for this is that they will not pile up and crowd one another, which, in my opinion, is the cause of a great loss of pigs, also of sows. The sleeping pens should be kept well bedded. The pens should be cleaned out quite often and fresh straw or other bedding put in. Rye straw makes excellent bedding; wild hay is also good. A little clover hay will be relished by the sows, and is very good for them, a fact to be remembered in feeding the sows.

(13)—The brood sows ought to be taken care of now. They should be kept in good flesh, but not too fat through the winter. When there is no grass they should be fed raw potatoes or mangels to keep them in a healthy

condition. An occasional feed of slop, and a feed of oats now and then is good for them. When breeding time comes the sow should be turned to the boar, and not the boar out to the sows, to get an even litter of pigs. A good boar, if he is fed and kept right, can serve two sows a day. The sows during winter months, or when they are heavy, should have plenty of exercise and plenty of room to lie down in. They should not be crowded.

(14)—The time of breeding is important. See to it that you have no pigs come early enough to be in danger of freezing at birth, unless you are thoroughly equipped for the business. I have made it a practice the last few years to have the pigs born about the 10th of May, or later, and I have been successful in saving full litters. I was told by a successful hog raiser to give my sows plenty of oats at breeding time, if I wished to have large litters of pigs. I did so and the experiment proved true. The brood sow must have plenty of exercise the last two months of pregnancy in order to be in good condition to give birth to her offspring. Watch her closely and let her run as long as you dare to before confinement. Do not chase her around the yards for an hour to shut her up in a place she does not care to go. One more precaution: do not turn a large, heavy-boned stock hog in the yard with small and runty sows. I have better luck with the sows a little larger of the two. This refers to well-bred hogs. I have given my experience in presenting this article, and while this is not the entire care and management, it is the first step in order to be successful.



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